PUMP STATION #30
HYDRAULIC REPORT
2X2 DESIGN

INTERSTATE 55 (STEVENSON EXPRESSWAY)
AT HOMAN AVENUE
P-91-762-10

CHICAGO, COOK COUNTY, ILLINOIS

Prepared for:

Illinois Department of Transportation
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CBBEL Project No. 11-0203

VOLUME 2 OF 2

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LIST OF SECTIONS

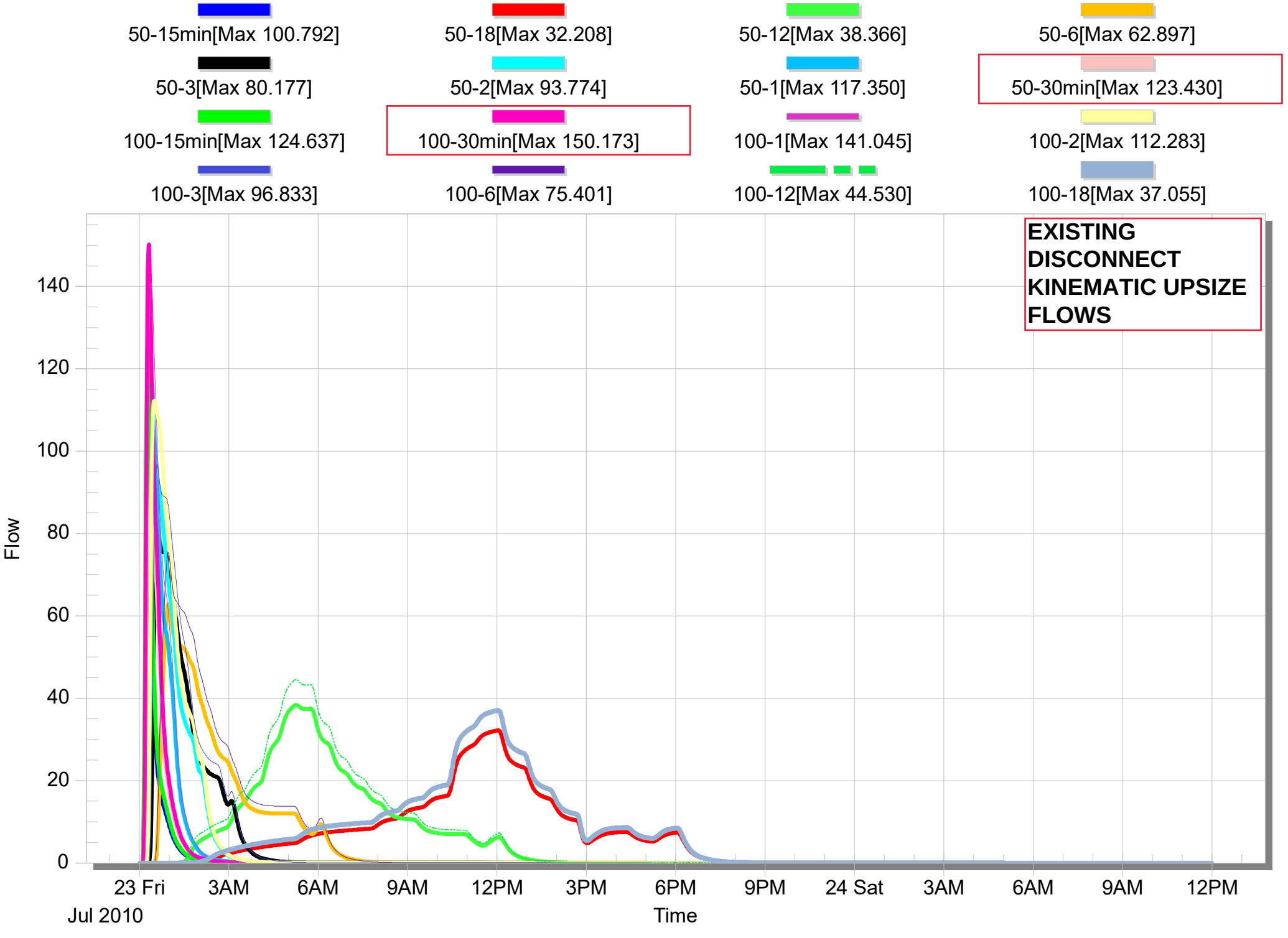
Volume 1

Volume 2

Section 11
Pump Schedule, Mass Routing Calculations, and Mass Curve Plot

EXISTING CONDITIONS

Conduit n851 ss from N851 to N934



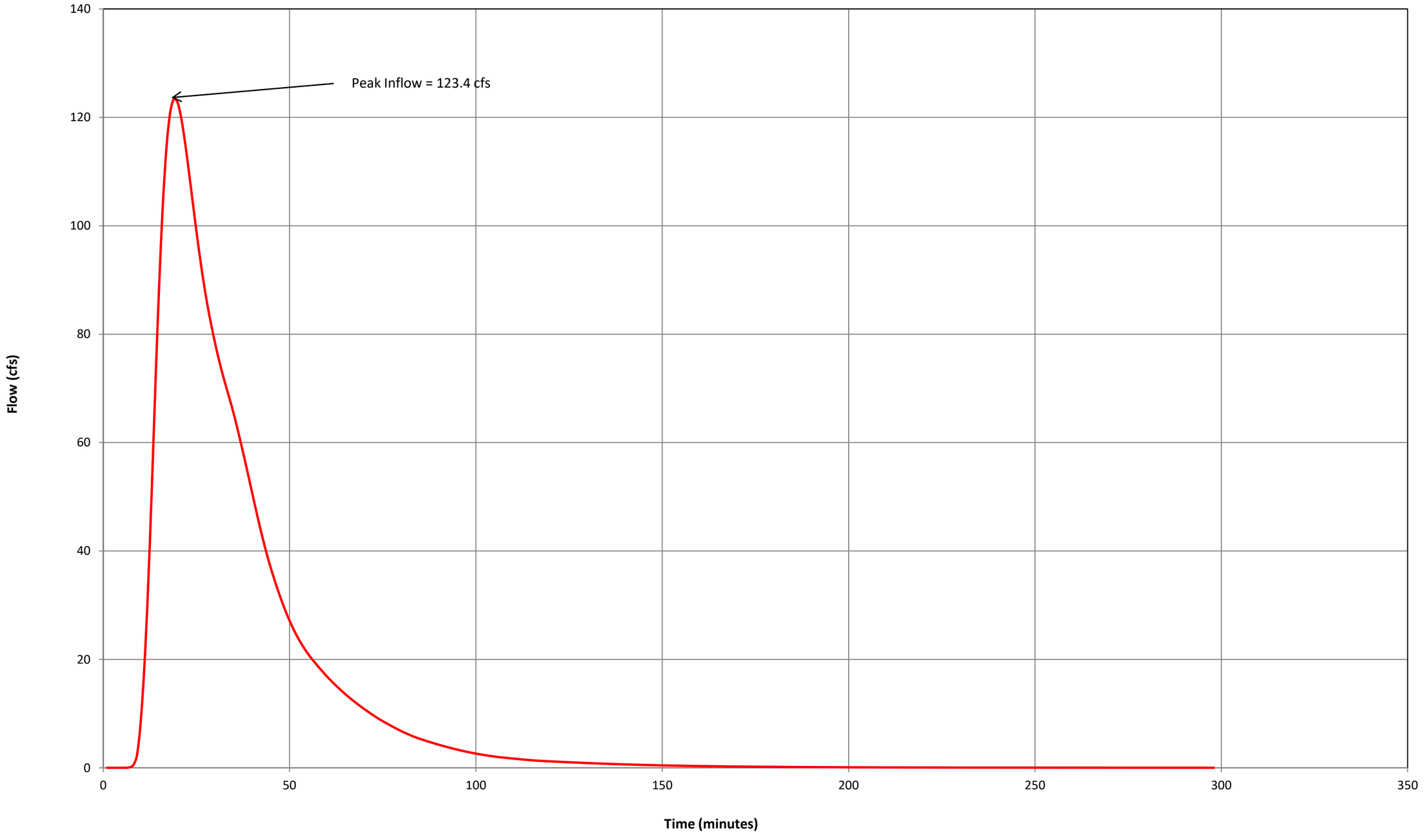
LINK DATA

EXISTING DISCONNECT KINEMATIC UPSIZE PIPE

Name	Storm	Diameter (Hei	Downstream I	Upstream Inve	Length	Upstream Cro	Downstream	Upstream Nod	Downstream
n841 ss	50-30min	10.000	581.880	582.710	200.000	592.710	N842	N841	591.880
n842 ss	50-30min	10.000	580.610	581.130	298.000	591.130	N843	N842	590.610
n843 ss	50-30min	10.000	576.790	577.660	398.000	587.660	N844	N843	586.790
n844 ss	50-30min	10.000	573.340	573.940	386.000	583.940	N845	N844	583.340
n845 ss	50-30min	10.000	565.530	565.790	414.000	575.790	N846	N845	575.530
n846 ss	50-30min	10.000	564.270	565.330	260.000	575.330	N847	N846	574.270
n847 ss	50-30min	10.000	563.715	564.170	186.000	574.170	N910	N847	573.715
n848 ss	50-30min	10.000	563.320	563.520	266.000	573.520	N870	N848	573.320
n849 ss	50-30min	10.000	562.370	563.060	335.000	573.060	N850	N849	572.370
n850 ss	50-30min	10.000	562.112	562.370	422.000	572.370	N921	N850	572.112
n851 ss	50-30min	10.000	561.170	562.060	483.000	572.060	N934	N851	571.170
n870 ss	50-30min	10.000	563.210	563.320	157.000	573.320	N849	N870	573.210
n910 ss	50-30min	10.000	563.520	563.715	80.000	573.715	N848	N910	573.520
n921 ss	50-30min	10.000	562.060	562.112	86.000	572.112	N851	N921	572.060

50-YEAR 30 MINUTE
EXISTING CONDITIONS

Inflow Hydrograph
50-Year, 30-Minute Design Storm



50-Year, 30-Minute Design Storm Event

	LOW FLOW	LEAD	LAG #1	LAG #2	STAND-BY
Pump 'ON' Volume (ft^3)	710	5,767	11,576	20,546	31,010
Pump 'ON' Elevation (ft)	558.2	562.7	563.7	564.7	565.7
Pump Flow Rate (cfs)	6.0	29.6	29.6	29.6	29.6

	LOW FLOW	LEAD	LAG #1	LAG #2	STAND-BY
Pump 'OFF' Volume (ft^3)	0	710	710	710	0
Pump 'OFF' Elevation (ft)	557.2	558.2	558.2	558.2	556.2

1

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)				
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2	Stand-by
1	0				0	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0													
2	0				0	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0													
3	0				0	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0													
4	0				0	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0													
5	0.002				0	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	1													
6	0.015				1	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	3													
7	0.086				4	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	16													
8	0.448				20	0	0	0	0	0	0	20	0	0	0	0	0
		1	60	78													
9	2.167				98	0	0	0	0	0	0	98	0	0	0	0	0
		5.130	60	307.77													
10	8.092				406	0	0	0	0	0	0	406	0	0	0	0	0
		13.204	60	792.21													
11	18.315				1,198	360	0	0	0	0	360	838	1	0	0	0	0
		25.57	60	1,534.44													
12	32.833				2,732	720	0	0	0	0	720	2,012	1	0	0	0	0
		41.92	60	2,515.02													
13	51.001				5,248	1,080	0	0	0	0	1,080	4,168	1	0	0	0	0
		60.88	60	3,652.98													
14	70.765				8,900	1,080	1,776	0	0	0	2,856	6,044	0	1	0	0	0
		79.90	60	4,793.79													
15	89.028				13,694	1,080	3,552	0	0	0	4,632	9,062	0	1	0	0	0
		96.54	60	5,792.49													
16	104.055				19,487	1,080	5,328	0	0	0	6,408	13,079	0	1	0	0	0
		109.40	60	6,564.09													
17	114.748				26,051	1,080	7,104	1,776	0	0	9,960	16,091	0	1	1	0	0
		117.91	60	7,074.87													
18	121.081				33,126	1,080	8,880	3,552	0	0	13,512	19,614	0	1	1	0	0
		122.26	60	7,335.33													
19	123.43				40,461	1,080	10,656	5,328	1,776	0	18,840	21,621	0	1	1	1	0
		123.03	60	7,381.53													
20	122.621				47,843	1,080	12,432	7,104	3,552	0	24,168	23,675	0	1	1	1	0

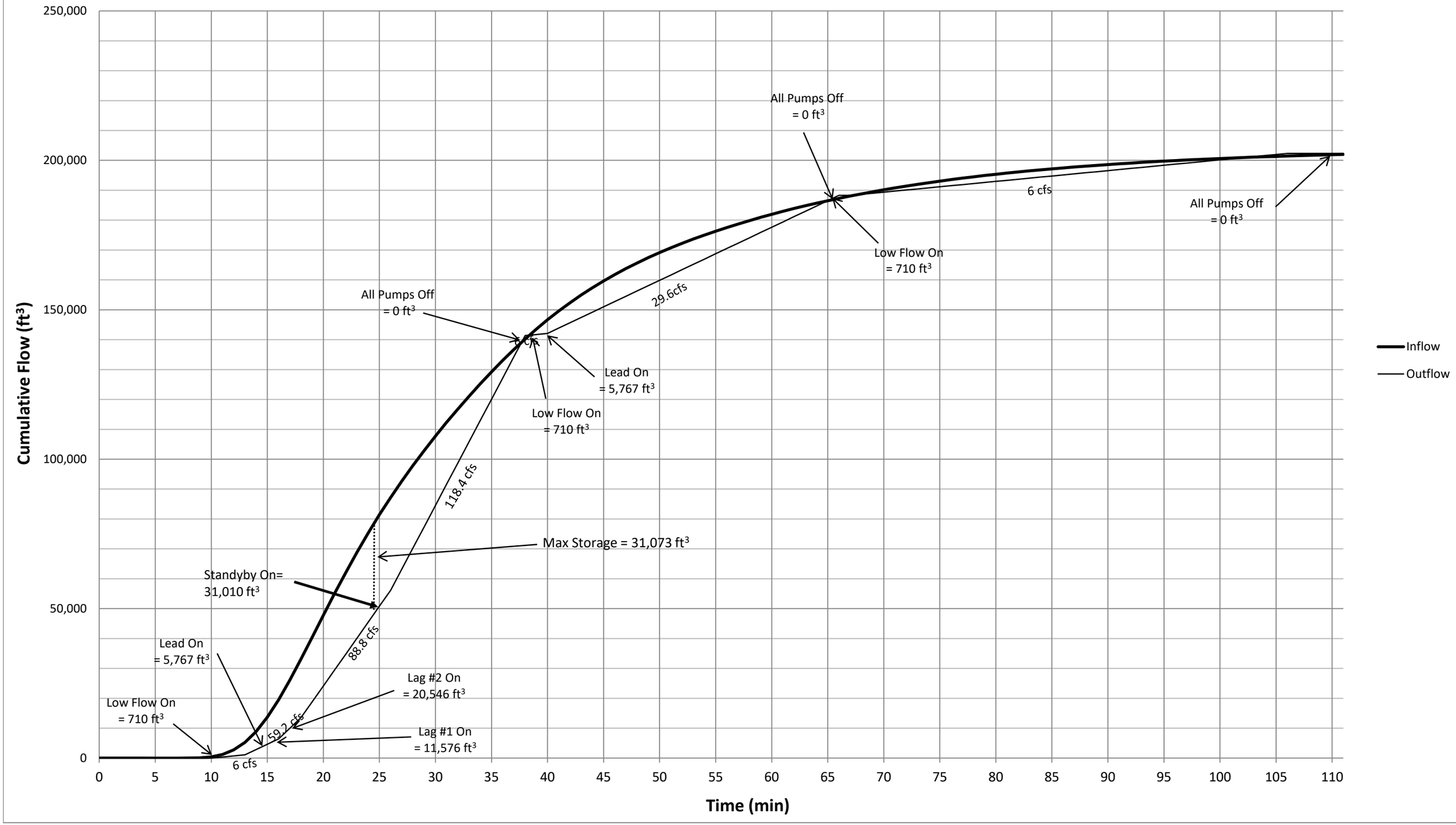
Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)				
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2	Stand-by
		121.09	60	7,265.52													
21	119.563				55,108	1,080	14,208	8,880	5,328	0	29,496	25,612	0	1	1	1	0
		117.32	60	7,039.41													
22	115.084				62,148	1,080	15,984	10,656	7,104	0	34,824	27,324	0	1	1	1	0
		112.47	60	6,748.17													
23	109.855				68,896	1,080	17,760	12,432	8,880	0	40,152	28,744	0	1	1	1	0
		107.12	60	6,426.93													
24	104.376				75,323	1,080	19,536	14,208	10,656	0	45,480	29,843	0	1	1	1	0
		101.68	60	6,100.59													
25	98.977				81,423	1,080	21,312	15,984	12,432	0	50,808	30,615	0	1	1	1	0
		96.44	60	5,786.25													
26	93.898				87,209	1,080	23,088	17,760	14,208	0	56,136	31,073	0	1	1	1	0
		91.59	60	5,495.37													
27	89.281				92,705	1,080	24,864	19,536	15,984	1,776	63,240	29,465	0	1	1	1	1
		87.24	60	5,234.46													
28	85.201				97,939	1,080	26,640	21,312	17,760	3,552	70,344	27,595	0	1	1	1	1
		83.41	60	5,004.42													
29	81.613				102,944	1,080	28,416	23,088	19,536	5,328	77,448	25,496	0	1	1	1	1
		79.99	60	4,799.31													
30	78.364				107,743	1,080	30,192	24,864	21,312	7,104	84,552	23,191	0	1	1	1	1
		76.87	60	4,612.23													
31	75.377				112,355	1,080	31,968	26,640	23,088	8,880	91,656	20,699	0	1	1	1	1
		74.03	60	4,441.59													
32	72.676				116,797	1,080	33,744	28,416	24,864	10,656	98,760	18,037	0	1	1	1	1
		71.45	60	4,286.79													
33	70.217				121,084	1,080	35,520	30,192	26,640	12,432	105,864	15,220	0	1	1	1	1
		69.02	60	4,141.44													
34	67.831				125,225	1,080	37,296	31,968	28,416	14,208	112,968	12,257	0	1	1	1	1
		66.58	60	3,994.62													
35	65.323				129,220	1,080	39,072	33,744	30,192	15,984	120,072	9,148	0	1	1	1	1
		63.96	60	3,837.30													
36	62.587				133,057	1,080	40,848	35,520	31,968	17,760	127,176	5,881	0	1	1	1	1
		61.13	60	3,667.59													
37	59.666				136,725	1,080	42,624	37,296	33,744	19,536	134,280	2,445	0	1	1	1	1
		58.19	60	3,491.64													
38	56.722				140,216	1,080	44,400	39,072	35,520	21,312	141,384	0	0	1	1	1	1
		55.19	60	3,311.55													
39	53.663				143,528	1,440	44,400	39,072	35,520	21,312	141,744	1,784	1	0	0	0	0
		52.12	60	3,127.08													
40	50.573				146,655	1,800	44,400	39,072	35,520	21,312	142,104	4,551	1	0	0	0	0
		49.04	60	2,942.61													
41	47.514				149,597	1,800	46,176	39,072	35,520	21,312	143,880	5,717	0	1	0	0	0
		46.03	60	2,761.95													
42	44.551				152,359	1,800	47,952	39,072	35,520	21,312	145,656	6,703	0	1	0	0	0
		43.15	60	2,588.73													
43	41.74				154,948	1,800	49,728	39,072	35,520	21,312	147,432	7,516	0	1	0	0	0
		40.43	60	2,426.04													
44	39.128				157,374	1,800	51,504	39,072	35,520	21,312	149,208	8,166	0	1	0	0	0
		37.94	60	2,276.46													
45	36.754				159,651	1,800	53,280	39,072	35,520	21,312	150,984	8,667	0	1	0	0	0
		35.66	60	2,139.57													

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)				
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2	Stand-by
46	34.565				161,790	1,800	55,056	39,072	35,520	21,312	152,760	9,030	0	1	0	0	0
		33.53	60	2,011.83													
47	32.496				163,802	1,800	56,832	39,072	35,520	21,312	154,536	9,266	0	1	0	0	0
		31.53	60	1,891.59													
48	30.557				165,694	1,800	58,608	39,072	35,520	21,312	156,312	9,382	0	1	0	0	0
		29.66	60	1,779.69													
49	28.766				167,473	1,800	60,384	39,072	35,520	21,312	158,088	9,385	0	1	0	0	0
		27.95	60	1,676.79													
50	27.127				169,150	1,800	62,160	39,072	35,520	21,312	159,864	9,286	0	1	0	0	0
		26.38	60	1,582.77													
51	25.632				170,733	1,800	63,936	39,072	35,520	21,312	161,640	9,093	0	1	0	0	0
		24.96	60	1,497.60													
52	24.288				172,230	1,800	65,712	39,072	35,520	21,312	163,416	8,814	0	1	0	0	0
		23.68	60	1,420.83													
53	23.073				173,651	1,800	67,488	39,072	35,520	21,312	165,192	8,459	0	1	0	0	0
		22.52	60	1,351.41													
54	21.974				175,003	1,800	69,264	39,072	35,520	21,312	166,968	8,035	0	1	0	0	0
		21.47	60	1,288.32													
55	20.97				176,291	1,800	71,040	39,072	35,520	21,312	168,744	7,547	0	1	0	0	0
		20.52	60	1,231.44													
56	20.078				177,522	1,800	72,816	39,072	35,520	21,312	170,520	7,002	0	1	0	0	0
		19.66	60	1,179.39													
57	19.235				178,702	1,800	74,592	39,072	35,520	21,312	172,296	6,406	0	1	0	0	0
		18.83	60	1,129.65													
58	18.42				179,832	1,800	76,368	39,072	35,520	21,312	174,072	5,760	0	1	0	0	0
		18.03	60	1,081.53													
59	17.631				180,913	1,800	78,144	39,072	35,520	21,312	175,848	5,065	0	1	0	0	0
		17.25	60	1,035.24													
60	16.877				181,948	1,800	79,920	39,072	35,520	21,312	177,624	4,324	0	1	0	0	0
		16.52	60	991.02													
61	16.157				182,939	1,800	81,696	39,072	35,520	21,312	179,400	3,539	0	1	0	0	0
		15.81	60	948.75													
62	15.468				183,888	1,800	83,472	39,072	35,520	21,312	181,176	2,712	0	1	0	0	0
		15.14	60	908.25													
63	14.807				184,796	1,800	85,248	39,072	35,520	21,312	182,952	1,844	0	1	0	0	0
		14.49	60	869.34													
64	14.171				185,666	1,800	87,024	39,072	35,520	21,312	184,728	938	0	1	0	0	0
		13.86	60	831.87													
65	13.558				186,498	1,800	88,800	39,072	35,520	21,312	186,504	0	0	1	0	0	0
		13.27	60	796.05													
66	12.977				187,294	1,800	90,576	39,072	35,520	21,312	188,280	0	0	1	0	0	0
		12.70	60	761.91													
67	12.42				188,055	1,800	90,576	39,072	35,520	21,312	188,280	0	0	0	0	0	0
		12.15	60	729.00													
68	11.88				188,784	2,160	90,576	39,072	35,520	21,312	188,640	144	1	0	0	0	0
		11.62	60	697.23													
69	11.361				189,482	2,520	90,576	39,072	35,520	21,312	189,000	482	1	0	0	0	0
		11.11	60	666.60													
70	10.859				190,148	2,880	90,576	39,072	35,520	21,312	189,360	788	1	0	0	0	0
		10.62	60	636.96													
71	10.373				190,785	3,240	90,576	39,072	35,520	21,312	189,720	1,065	1	0	0	0	0

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)				
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2	Stand-by
		10.14	60	608.28													
72	9.903				191,394	3,600	90,576	39,072	35,520	21,312	190,080	1,314	1	0	0	0	0
		9.68	60	580.53													
73	9.448				191,974	3,960	90,576	39,072	35,520	21,312	190,440	1,534	1	0	0	0	0
		9.23	60	553.62													
74	9.006				192,528	4,320	90,576	39,072	35,520	21,312	190,800	1,728	1	0	0	0	0
		8.80	60	528.12													
75	8.598				193,056	4,680	90,576	39,072	35,520	21,312	191,160	1,896	1	0	0	0	0
		8.41	60	504.42													
76	8.216				193,560	5,040	90,576	39,072	35,520	21,312	191,520	2,040	1	0	0	0	0
		8.03	60	481.56													
77	7.836				194,042	5,400	90,576	39,072	35,520	21,312	191,880	2,162	1	0	0	0	0
		7.65	60	459.00													
78	7.464				194,501	5,760	90,576	39,072	35,520	21,312	192,240	2,261	1	0	0	0	0
		7.29	60	437.10													
79	7.106				194,938	6,120	90,576	39,072	35,520	21,312	192,600	2,338	1	0	0	0	0
		6.94	60	416.13													
80	6.765				195,354	6,480	90,576	39,072	35,520	21,312	192,960	2,394	1	0	0	0	0
		6.60	60	396.24													
81	6.443				195,750	6,840	90,576	39,072	35,520	21,312	193,320	2,430	1	0	0	0	0
		6.29	60	377.46													
82	6.139				196,128	7,200	90,576	39,072	35,520	21,312	193,680	2,448	1	0	0	0	0
		6.00	60	359.70													
83	5.851				196,487	7,560	90,576	39,072	35,520	21,312	194,040	2,447	1	0	0	0	0
		5.72	60	343.05													
84	5.584				196,830	7,920	90,576	39,072	35,520	21,312	194,400	2,430	1	0	0	0	0
		5.46	60	327.78													
85	5.342				197,158	8,280	90,576	39,072	35,520	21,312	194,760	2,398	1	0	0	0	0
		5.23	60	313.68													
86	5.114				197,472	8,640	90,576	39,072	35,520	21,312	195,120	2,352	1	0	0	0	0
		5.00	60	300.21													
87	4.893				197,772	9,000	90,576	39,072	35,520	21,312	195,480	2,292	1	0	0	0	0
		4.79	60	287.16													
88	4.679				198,059	9,360	90,576	39,072	35,520	21,312	195,840	2,219	1	0	0	0	0
		4.57	60	274.47													
89	4.47				198,334	9,720	90,576	39,072	35,520	21,312	196,200	2,134	1	0	0	0	0
		4.37	60	262.14													
90	4.268				198,596	10,080	90,576	39,072	35,520	21,312	196,560	2,036	1	0	0	0	0
		4.17	60	250.20													
91	4.072				198,846	10,440	90,576	39,072	35,520	21,312	196,920	1,926	1	0	0	0	0
		3.98	60	238.65													
92	3.883				199,085	10,800	90,576	39,072	35,520	21,312	197,280	1,805	1	0	0	0	0
		3.79	60	227.52													
93	3.701				199,312	11,160	90,576	39,072	35,520	21,312	197,640	1,672	1	0	0	0	0
		3.61	60	216.81													
94	3.526				199,529	11,520	90,576	39,072	35,520	21,312	198,000	1,529	1	0	0	0	0
		3.44	60	206.49													
95	3.357				199,736	11,880	90,576	39,072	35,520	21,312	198,360	1,376	1	0	0	0	0
		3.28	60	196.59													
96	3.196				199,932	12,240	90,576	39,072	35,520	21,312	198,720	1,212	1	0	0	0	0
		3.12	60	187.11													

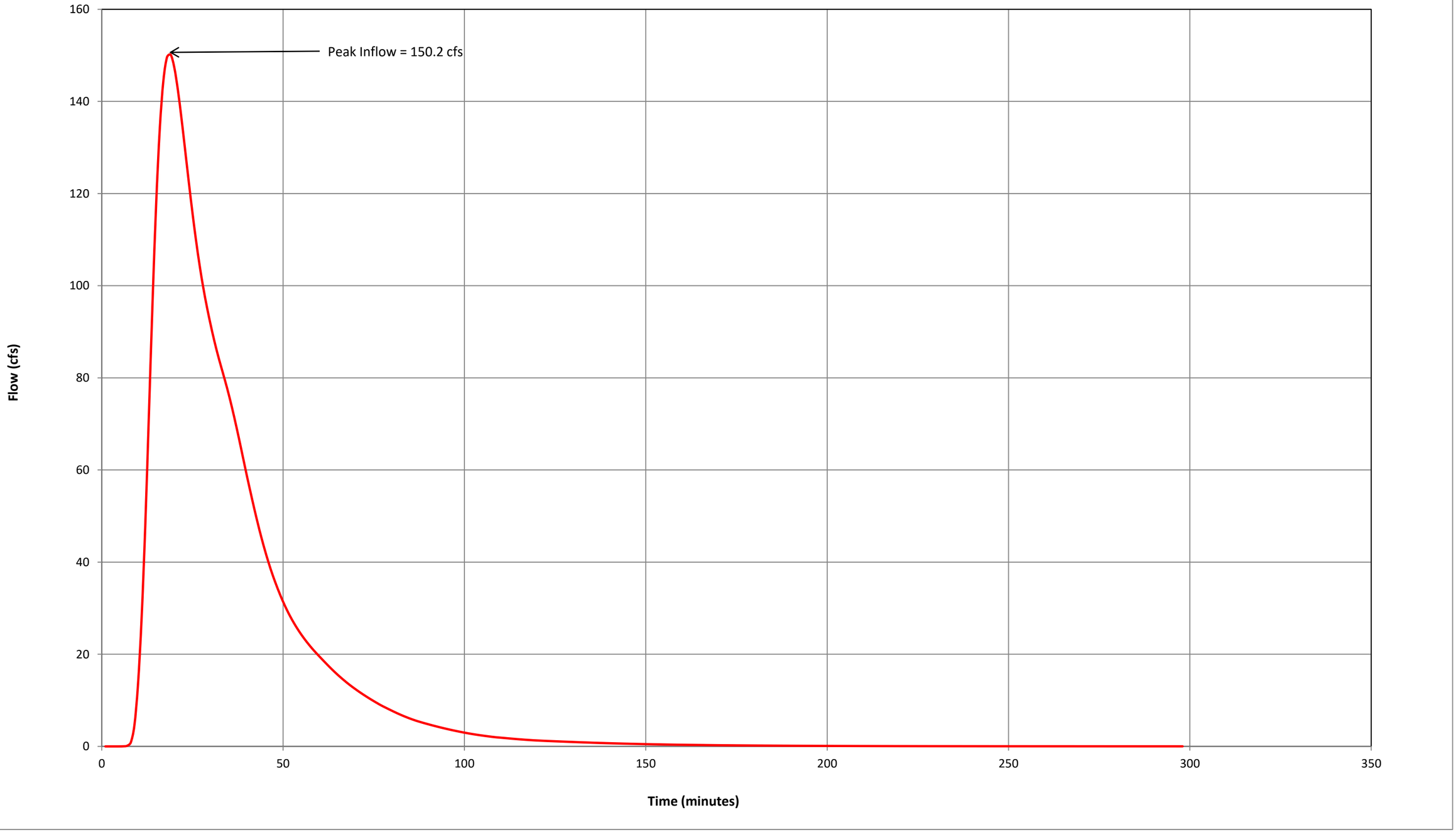
Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)				
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2	Stand-by
97	3.041				200,119	12,600	90,576	39,072	35,520	21,312	199,080	1,039	1	0	0	0	0
		2.97	60	178.02													
98	2.893				200,297	12,960	90,576	39,072	35,520	21,312	199,440	857	1	0	0	0	0
		2.82	60	169.41													
99	2.754				200,467	13,320	90,576	39,072	35,520	21,312	199,800	667	1	0	0	0	0
		2.69	60	161.34													
100	2.624				200,628	13,680	90,576	39,072	35,520	21,312	200,160	468	1	0	0	0	0
		2.56	60	153.78													
101	2.502				200,782	14,040	90,576	39,072	35,520	21,312	200,520	262	1	0	0	0	0
		2.45	60	146.70													
102	2.388				200,929	14,400	90,576	39,072	35,520	21,312	200,880	49	1	0	0	0	0
		2.33	60	140.01													
103	2.279				201,069	14,760	90,576	39,072	35,520	21,312	201,240	0	1	0	0	0	0

Existing Conditions Mass Curve Routing
50-Year, 30-Minute Event



100-YEAR 30 MINUTE
EXISTING CONDITIONS

Inflow Hydrograph
100-Year, 30-Minute Design Storm



100-Year, 30-Minute Design Storm Event

	LOW FLOW	LEAD	LAG #1	LAG #2	STAND-BY
Pump 'ON' Volume (ft^3)	710	5,767	11,576	20,546	31,010
Pump 'ON' Elevation (ft)	558.2	562.7	563.7	564.7	565.7
Pump Flow Rate (cfs)	6.0	29.6	29.6	29.6	29.6

	LOW FLOW	LEAD	LAG #1	LAG #2	STAND-BY
Pump 'OFF' Volume (ft^3)	0	710	710	710	0
Pump 'OFF' Elevation (ft)	557.2	558.2	558.2	558.2	556.2

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Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)				
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2	Stand-by
1	0				0	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0													
2	0				0	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0													
3	0				0	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0													
4	0				0	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0													
5	0.003				0	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	1													
6	0.024				1	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	5													
7	0.14				6	0	0	0	0	0	0	0	0	0	0	0	0
		0	60	29													
8	0.838				35	0	0	0	0	0	0	35	0	0	0	0	0
		3	60	161													
9	4.535				196	0	0	0	0	0	0	196	0	0	0	0	0
		9.017	60	541.02													
10	13.499				737	0	0	0	0	0	0	737	0	0	0	0	0
		20.729	60	1,243.71													
11	27.958				1,981	360	0	0	0	0	360	1,621	1	0	0	0	0
		37.94	60	2,276.34													
12	47.92				4,257	720	0	0	0	0	720	3,537	1	0	0	0	0
		59.94	60	3,596.28													
13	71.956				7,854	1,080	0	0	0	0	1,080	6,774	1	0	0	0	0
		84.13	60	5,047.89													
14	96.307				12,902	1,080	1,776	0	0	0	2,856	10,046	0	1	0	0	0
		107.01	60	6,420.45													
15	117.708				19,322	1,080	3,552	1,776	0	0	6,408	12,914	0	1	1	0	0
		125.88	60	7,552.89													
16	134.055				26,875	1,080	5,328	3,552	0	0	9,960	16,915	0	1	1	0	0
		139.30	60	8,358.27													
17	144.554				35,233	1,080	7,104	5,328	0	0	13,512	21,721	0	1	1	0	0
		147.09	60	8,825.13													
18	149.617				44,058	1,080	8,880	7,104	1,776	0	18,840	25,218	0	1	1	1	0
		149.90	60	8,993.70													
19	150.173				53,052	1,080	10,656	8,880	3,552	0	24,168	28,884	0	1	1	1	0
		148.78	60	8,927.07													
20	147.396				61,979	1,080	12,432	10,656	5,328	0	29,496	32,483	0	1	1	1	0

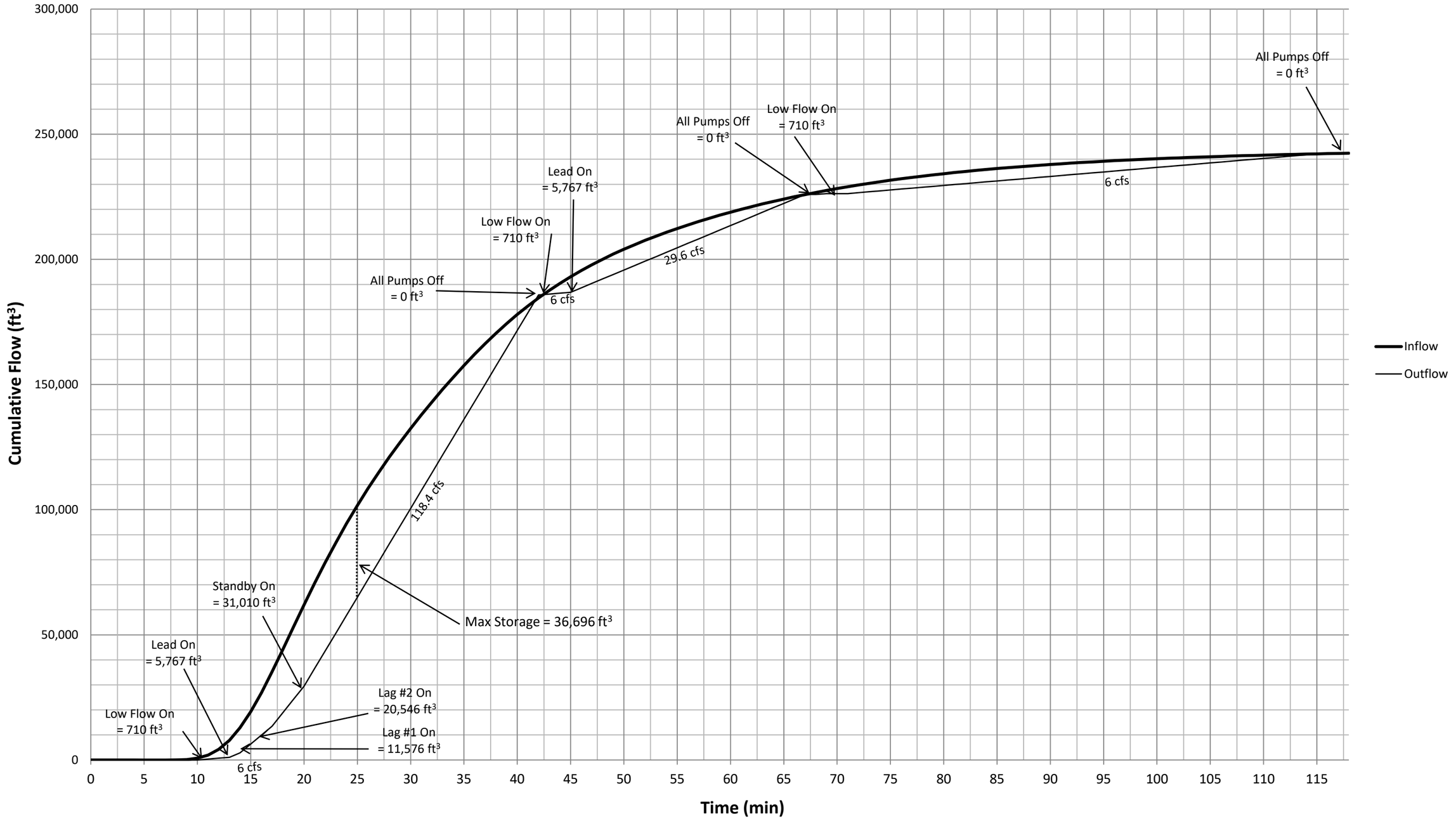
Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)				
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2	Stand-by
		144.92	60	8,695.17													
21	142.443				70,674	1,080	14,208	12,432	7,104	1,776	36,600	34,074	0	1	1	1	1
		139.33	60	8,359.53													
22	136.208				79,034	1,080	15,984	14,208	8,880	3,552	43,704	35,330	0	1	1	1	1
		132.80	60	7,968.18													
23	129.398				87,002	1,080	17,760	15,984	10,656	5,328	50,808	36,194	0	1	1	1	1
		125.96	60	7,557.51													
24	122.519				94,559	1,080	19,536	17,760	12,432	7,104	57,912	36,647	0	1	1	1	1
		119.21	60	7,152.81													
25	115.908				101,712	1,080	21,312	19,536	14,208	8,880	65,016	36,696	0	1	1	1	1
		112.86	60	6,771.63													
26	109.813				108,484	1,080	23,088	21,312	15,984	10,656	72,120	36,364	0	1	1	1	1
		107.08	60	6,424.80													
27	104.347				114,909	1,080	24,864	23,088	17,760	12,432	79,224	35,685	0	1	1	1	1
		101.95	60	6,117.21													
28	99.56				121,026	1,080	26,640	24,864	19,536	14,208	86,328	34,698	0	1	1	1	1
		97.47	60	5,848.05													
29	95.375				126,874	1,080	28,416	26,640	21,312	15,984	93,432	33,442	0	1	1	1	1
		93.49	60	5,609.61													
30	91.612				132,484	1,080	30,192	28,416	23,088	17,760	100,536	31,948	0	1	1	1	1
		89.88	60	5,393.04													
31	88.156				137,877	1,080	31,968	30,192	24,864	19,536	107,640	30,237	0	1	1	1	1
		86.59	60	5,195.55													
32	85.029				143,072	1,080	33,744	31,968	26,640	21,312	114,744	28,328	0	1	1	1	1
		83.60	60	5,016.27													
33	82.18				148,088	1,080	35,520	33,744	28,416	23,088	121,848	26,240	0	1	1	1	1
		80.78	60	4,846.92													
34	79.384				152,935	1,080	37,296	35,520	30,192	24,864	128,952	23,983	0	1	1	1	1
		77.91	60	4,674.78													
35	76.442				157,610	1,080	39,072	37,296	31,968	26,640	136,056	21,554	0	1	1	1	1
		74.84	60	4,490.52													
36	73.242				162,101	1,080	40,848	39,072	33,744	28,416	143,160	18,941	0	1	1	1	1
		71.53	60	4,291.65													
37	69.813				166,392	1,080	42,624	40,848	35,520	30,192	150,264	16,128	0	1	1	1	1
		68.01	60	4,080.84													
38	66.215				170,473	1,080	44,400	42,624	37,296	31,968	157,368	13,105	0	1	1	1	1
		64.35	60	3,861.21													
39	62.492				174,334	1,080	46,176	44,400	39,072	33,744	164,472	9,862	0	1	1	1	1
		60.64	60	3,638.61													
40	58.795				177,973	1,080	47,952	46,176	40,848	35,520	171,576	6,397	0	1	1	1	1
		57.02	60	3,421.32													
41	55.249				181,394	1,080	49,728	47,952	42,624	37,296	178,680	2,714	0	1	1	1	1
		53.52	60	3,211.02													
42	51.785				184,605	1,080	51,504	49,728	44,400	39,072	185,784	0	0	1	1	1	1
		50.14	60	3,008.13													
43	48.486				187,613	1,440	51,504	49,728	44,400	39,072	186,144	1,469	1	0	0	0	0
		46.94	60	2,816.55													
44	45.399				190,430	1,800	51,504	49,728	44,400	39,072	186,504	3,926	1	0	0	0	0
		43.97	60	2,638.17													
45	42.54				193,068	2,160	51,504	49,728	44,400	39,072	186,864	6,204	1	0	0	0	0
		41.22	60	2,473.05													

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)				
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2	Stand-by
46	39.895				195,541	2,160	53,280	49,728	44,400	39,072	188,640	6,901	0	1	0	0	0
		38.68	60	2,321.04													
47	37.473				197,862	2,160	55,056	49,728	44,400	39,072	190,416	7,446	0	1	0	0	0
		36.38	60	2,183.07													
48	35.296				200,045	2,160	56,832	49,728	44,400	39,072	192,192	7,853	0	1	0	0	0
		34.28	60	2,056.86													
49	33.266				202,102	2,160	58,608	49,728	44,400	39,072	193,968	8,134	0	1	0	0	0
		32.33	60	1,940.04													
50	31.402				204,042	2,160	60,384	49,728	44,400	39,072	195,744	8,298	0	1	0	0	0
		30.55	60	1,833.15													
51	29.703				205,875	2,160	62,160	49,728	44,400	39,072	197,520	8,355	0	1	0	0	0
		28.93	60	1,735.98													
52	28.163				207,611	2,160	63,936	49,728	44,400	39,072	199,296	8,315	0	1	0	0	0
		27.46	60	1,647.81													
53	26.764				209,259	2,160	65,712	49,728	44,400	39,072	201,072	8,187	0	1	0	0	0
		26.12	60	1,567.26													
54	25.478				210,826	2,160	67,488	49,728	44,400	39,072	202,848	7,978	0	1	0	0	0
		24.89	60	1,493.37													
55	24.301				212,320	2,160	69,264	49,728	44,400	39,072	204,624	7,696	0	1	0	0	0
		23.76	60	1,425.45													
56	23.214				213,745	2,160	71,040	49,728	44,400	39,072	206,400	7,345	0	1	0	0	0
		22.71	60	1,362.54													
57	22.204				215,108	2,160	72,816	49,728	44,400	39,072	208,176	6,932	0	1	0	0	0
		21.73	60	1,303.80													
58	21.256				216,412	2,160	74,592	49,728	44,400	39,072	209,952	6,460	0	1	0	0	0
		20.81	60	1,248.87													
59	20.373				217,660	2,160	76,368	49,728	44,400	39,072	211,728	5,932	0	1	0	0	0
		19.95	60	1,197.27													
60	19.536				218,858	2,160	78,144	49,728	44,400	39,072	213,504	5,354	0	1	0	0	0
		19.12	60	1,147.32													
61	18.708				220,005	2,160	79,920	49,728	44,400	39,072	215,280	4,725	0	1	0	0	0
		18.30	60	1,097.88													
62	17.888				221,103	2,160	81,696	49,728	44,400	39,072	217,056	4,047	0	1	0	0	0
		17.49	60	1,049.28													
63	17.088				222,152	2,160	83,472	49,728	44,400	39,072	218,832	3,320	0	1	0	0	0
		16.70	60	1,002.21													
64	16.319				223,154	2,160	85,248	49,728	44,400	39,072	220,608	2,546	0	1	0	0	0
		15.95	60	957.12													
65	15.585				224,112	2,160	87,024	49,728	44,400	39,072	222,384	1,728	0	1	0	0	0
		15.24	60	914.13													
66	14.886				225,026	2,160	88,800	49,728	44,400	39,072	224,160	866	0	1	0	0	0
		14.55	60	873.06													
67	14.216				225,899	2,160	90,576	49,728	44,400	39,072	225,936	0	0	1	0	0	0
		13.90	60	833.73													
68	13.575				226,732	2,160	90,576	49,728	44,400	39,072	225,936	796	0	0	0	0	0
		13.27	60	796.38													
69	12.971				227,529	2,520	90,576	49,728	44,400	39,072	226,296	1,233	1	0	0	0	0
		12.68	60	761.01													
70	12.396				228,290	2,520	90,576	49,728	44,400	39,072	226,296	1,994	0	0	0	0	0
		12.12	60	727.11													
71	11.841				229,017	2,520	90,576	49,728	44,400	39,072	226,296	2,721	0	0	0	0	0

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)				
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2	Stand-by
		11.58	60	694.62													
72	11.313				229,712	2,880	90,576	49,728	44,400	39,072	226,656	3,056	1	0	0	0	0
		11.06	60	663.39													
73	10.8				230,375	3,240	90,576	49,728	44,400	39,072	227,016	3,359	1	0	0	0	0
		10.55	60	633.18													
74	10.306				231,008	3,600	90,576	49,728	44,400	39,072	227,376	3,632	1	0	0	0	0
		10.07	60	604.05													
75	9.829				231,612	3,960	90,576	49,728	44,400	39,072	227,736	3,876	1	0	0	0	0
		9.60	60	575.88													
76	9.367				232,188	4,320	90,576	49,728	44,400	39,072	228,096	4,092	1	0	0	0	0
		9.14	60	548.61													
77	8.92				232,737	4,680	90,576	49,728	44,400	39,072	228,456	4,281	1	0	0	0	0
		8.72	60	523.11													
78	8.517				233,260	5,040	90,576	49,728	44,400	39,072	228,816	4,444	1	0	0	0	0
		8.32	60	499.35													
79	8.128				233,759	5,400	90,576	49,728	44,400	39,072	229,176	4,583	1	0	0	0	0
		7.94	60	476.10													
80	7.742				234,235	5,760	90,576	49,728	44,400	39,072	229,536	4,699	1	0	0	0	0
		7.55	60	453.27													
81	7.367				234,689	6,120	90,576	49,728	44,400	39,072	229,896	4,793	1	0	0	0	0
		7.19	60	431.22													
82	7.007				235,120	6,480	90,576	49,728	44,400	39,072	230,256	4,864	1	0	0	0	0
		6.84	60	410.19													
83	6.666				235,530	6,840	90,576	49,728	44,400	39,072	230,616	4,914	1	0	0	0	0
		6.51	60	390.30													
84	6.344				235,920	7,200	90,576	49,728	44,400	39,072	230,976	4,944	1	0	0	0	0
		6.19	60	371.55													
85	6.041				236,292	7,560	90,576	49,728	44,400	39,072	231,336	4,956	1	0	0	0	0
		5.90	60	353.88													
86	5.755				236,646	7,920	90,576	49,728	44,400	39,072	231,696	4,950	1	0	0	0	0
		5.63	60	337.53													
87	5.496				236,983	8,280	90,576	49,728	44,400	39,072	232,056	4,927	1	0	0	0	0
		5.38	60	322.62													
88	5.258				237,306	8,640	90,576	49,728	44,400	39,072	232,416	4,890	1	0	0	0	0
		5.14	60	308.67													
89	5.031				237,614	9,000	90,576	49,728	44,400	39,072	232,776	4,838	1	0	0	0	0
		4.92	60	295.32													
90	4.813				237,910	9,360	90,576	49,728	44,400	39,072	233,136	4,774	1	0	0	0	0
		4.71	60	282.39													
91	4.6				238,192	9,720	90,576	49,728	44,400	39,072	233,496	4,696	1	0	0	0	0
		4.50	60	269.82													
92	4.394				238,462	10,080	90,576	49,728	44,400	39,072	233,856	4,606	1	0	0	0	0
		4.29	60	257.64													
93	4.194				238,720	10,440	90,576	49,728	44,400	39,072	234,216	4,504	1	0	0	0	0
		4.10	60	245.88													
94	4.002				238,966	10,800	90,576	49,728	44,400	39,072	234,576	4,390	1	0	0	0	0
		3.91	60	234.54													
95	3.816				239,200	11,160	90,576	49,728	44,400	39,072	234,936	4,264	1	0	0	0	0
		3.73	60	223.56													
96	3.636				239,424	11,520	90,576	49,728	44,400	39,072	235,296	4,128	1	0	0	0	0
		3.55	60	213.00													

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)				
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2	Stand-by
97	3.464				239,637	11,880	90,576	49,728	44,400	39,072	235,656	3,981	1	0	0	0	0
		3.38	60	202.86													
98	3.298				239,840	12,240	90,576	49,728	44,400	39,072	236,016	3,823	1	0	0	0	0
		3.22	60	193.14													
99	3.14				240,033	12,600	90,576	49,728	44,400	39,072	236,376	3,657	1	0	0	0	0
		3.06	60	183.81													
100	2.987				240,216	12,960	90,576	49,728	44,400	39,072	236,736	3,480	1	0	0	0	0
		2.92	60	174.90													
101	2.843				240,391	13,320	90,576	49,728	44,400	39,072	237,096	3,295	1	0	0	0	0
		2.78	60	166.50													
102	2.707				240,558	13,680	90,576	49,728	44,400	39,072	237,456	3,102	1	0	0	0	0
		2.64	60	158.61													
103	2.58				240,716	14,040	90,576	49,728	44,400	39,072	237,816	2,900	1	0	0	0	0
		2.52	60	151.23													
104	2.461				240,868	14,400	90,576	49,728	44,400	39,072	238,176	2,692	1	0	0	0	0
		2.41	60	144.30													
105	2.349				241,012	14,760	90,576	49,728	44,400	39,072	238,536	2,476	1	0	0	0	0
		2.30	60	137.73													
106	2.242				241,150	15,120	90,576	49,728	44,400	39,072	238,896	2,254	1	0	0	0	0
		2.19	60	131.49													
107	2.141				241,281	15,480	90,576	49,728	44,400	39,072	239,256	2,025	1	0	0	0	0
		2.09	60	125.55													
108	2.044				241,407	15,840	90,576	49,728	44,400	39,072	239,616	1,791	1	0	0	0	0
		2.00	60	120.15													
109	1.961				241,527	16,200	90,576	49,728	44,400	39,072	239,976	1,551	1	0	0	0	0
		1.93	60	115.65													
110	1.894				241,643	16,560	90,576	49,728	44,400	39,072	240,336	1,307	1	0	0	0	0
		1.86	60	111.54													
111	1.824				241,754	16,920	90,576	49,728	44,400	39,072	240,696	1,058	1	0	0	0	0
		1.79	60	107.31													
112	1.753				241,861	17,280	90,576	49,728	44,400	39,072	241,056	805	1	0	0	0	0
		1.72	60	103.08													
113	1.683				241,964	17,640	90,576	49,728	44,400	39,072	241,416	548	1	0	0	0	0
		1.65	60	98.97													
114	1.616				242,063	18,000	90,576	49,728	44,400	39,072	241,776	287	1	0	0	0	0
		1.58	60	95.04													
115	1.552				242,159	18,360	90,576	49,728	44,400	39,072	242,136	22	1	0	0	0	0
		1.52	60	91.29													
116	1.491				242,250	18,720	90,576	49,728	44,400	39,072	242,496	0	1	0	0	0	0
		1.46	60	87.75													
117	1.434				242,338	18,720	90,576	49,728	44,400	39,072	242,496	0	0	0	0	0	0

Existing Conditions Mass Curve Routing
100-Year, 30-Minute Event



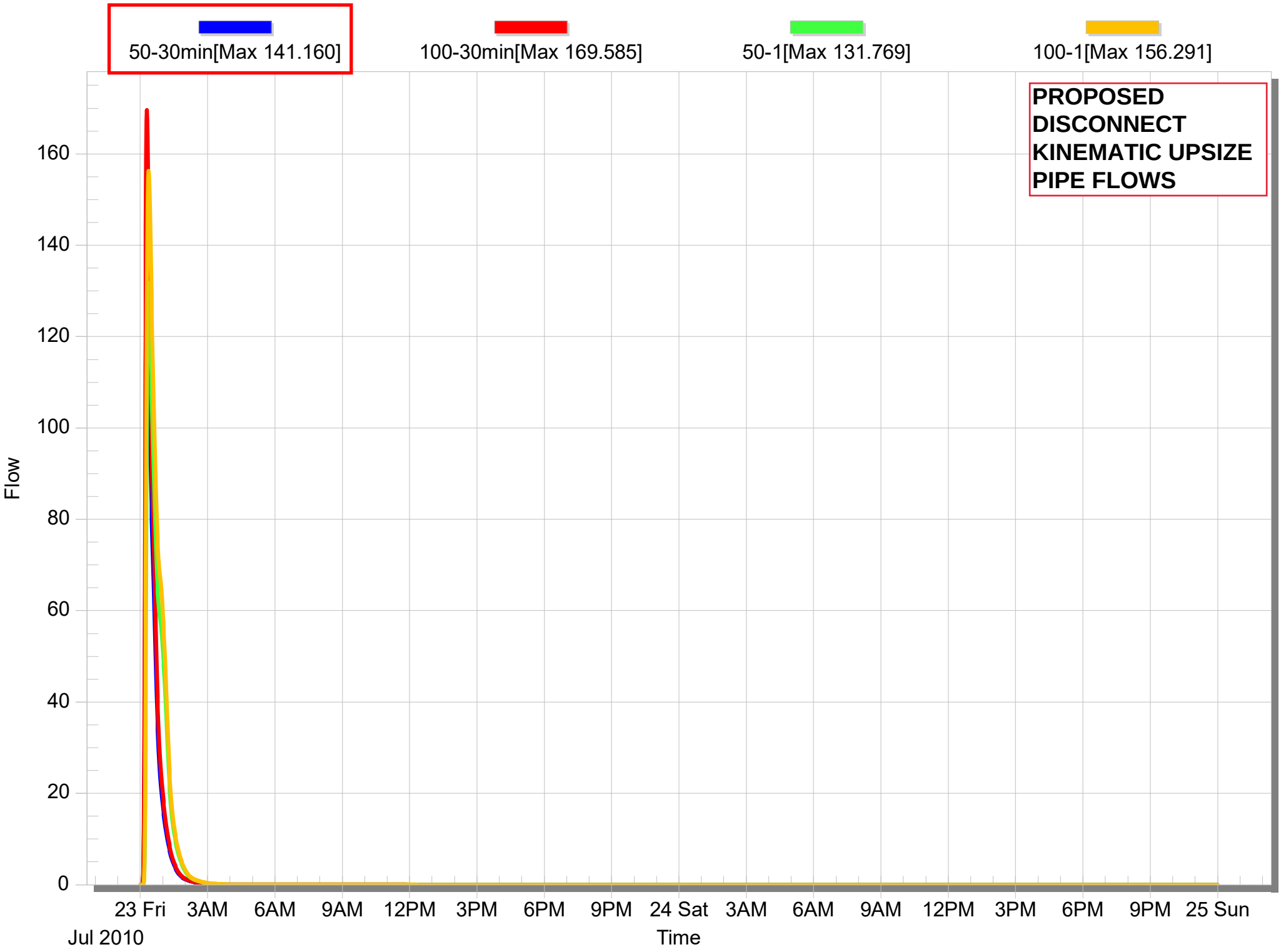
PROPOSED CONDITIONS

LINK DATA

PROPOSED DISCONNECT KINEMATIC UPSIZE PIPE

Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
n841 ss	100-30min	10.000	581.880	582.710	200.000	593.010	N842	N841	591.880
n842 ss	100-30min	10.000	580.610	581.130	298.000	591.130	N843	N842	590.610
n843 ss	100-30min	10.000	576.790	577.660	398.000	587.660	N844	N843	586.790
n844 ss	100-30min	10.000	573.340	573.940	386.000	583.940	N845	N844	583.340
n845 ss	100-30min	10.000	565.530	565.790	414.000	575.790	N846	N845	575.530
n846 ss	100-30min	10.000	564.270	565.330	260.000	575.330	N847	N846	574.270
n847 ss	100-30min	10.000	563.715	564.170	186.000	574.170	N910	N847	573.715
n848 ss	100-30min	10.000	563.320	563.520	266.000	573.520	N870	N848	573.320
n849 ss	100-30min	10.000	562.370	563.060	335.000	573.060	N850	N849	572.370
n850 ss	100-30min	10.000	562.112	562.370	422.000	572.370	N921	N850	572.112
n851 ss	100-30min	10.000	561.170	562.060	483.000	572.060	N934	N851	571.170
n870 ss	100-30min	10.000	563.210	563.320	157.000	573.320	N849	N870	573.210
n910 ss	100-30min	10.000	563.520	563.715	80.000	573.715	N848	N910	573.520
n921 ss	100-30min	10.000	562.060	562.112	86.000	572.112	N851	N921	572.060

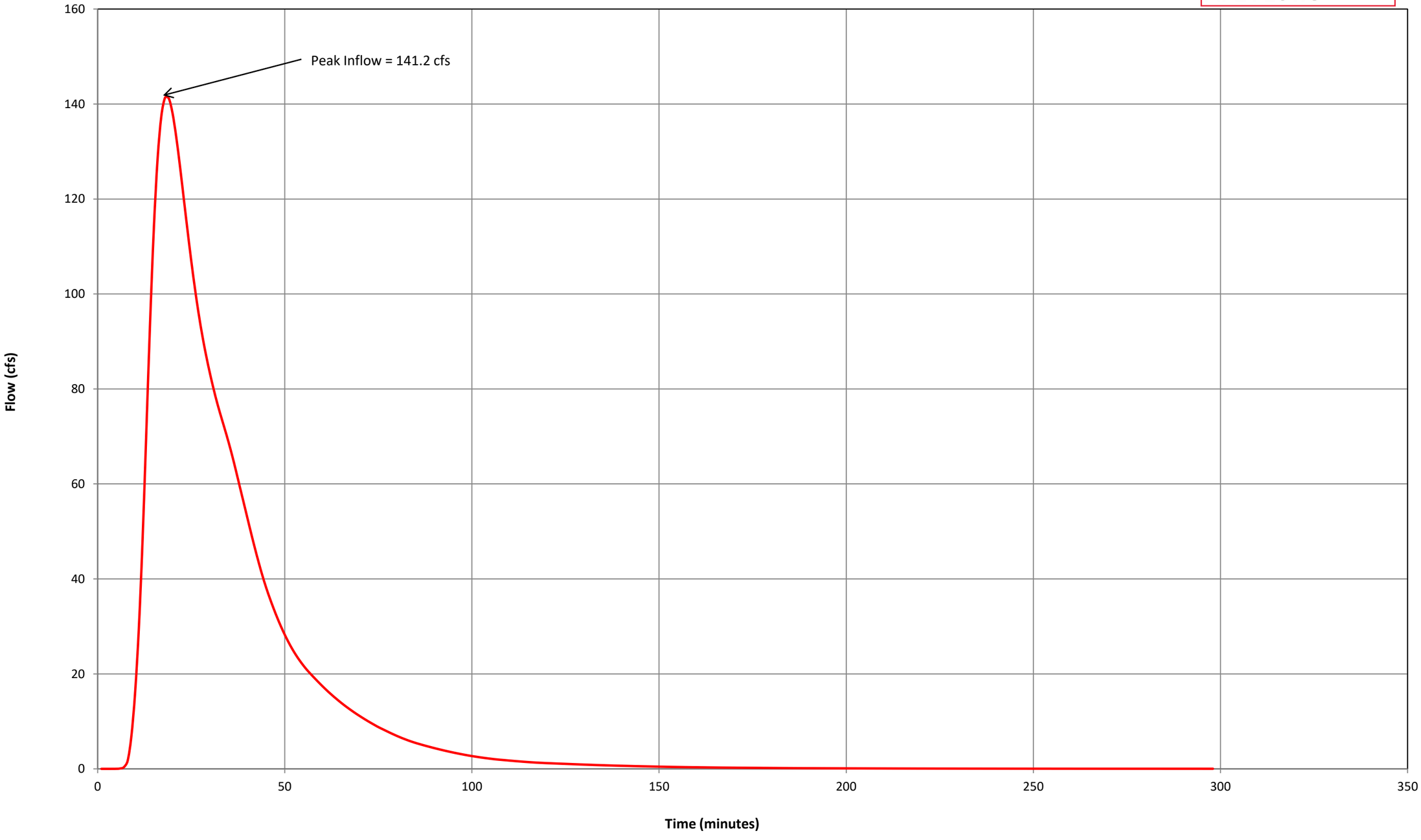
Conduit n851 ss from N851 to N934



50-YEAR, 30-MINUTE EVENT
PROPOSED CONDITIONS

PROPOSED DISCONNECT KINEMATIC UPSIZE PIPE FLOWS

Inflow Hydrograph
50-Year, 30-min Design Storm



50-Year, 30-Minute Design Storm Event

	LOW FLOW	LEAD	LAG #1	LAG #2	
Pump 'ON' Volume (ft^3)	710	5,767	11,576	20,546	
Pump 'ON' Elevation (ft)	558.2	562.7	563.7	564.7	
Pump Flow Rate (cfs)	6.0	29.6	29.6	29.6	

	LOW FLOW	LEAD	LAG #1	LAG #2	
Pump 'OFF' Volume (ft^3)	0	710	710	710	
Pump 'OFF' Elevation (ft)	557.2	558.2	558.2	558.2	

1

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Cumulative Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)			
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2
1	0				0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0												
2	0				0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0												
3	0				0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0												
4	0.001				0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0												
5	0.012				0	0	0	0	0	0	0	0	0	0	0	0
		0	60	2												
6	0.071				3	0	0	0	0	0	0	0	0	0	0	0
		0	60	13												
7	0.35				16	0	0	0	0	0	0	0	0	0	0	0
		1	60	61												
8	1.671				76	0	0	0	0	0	0	76	0	0	0	0
		4	60	255												
9	6.832				331	0	0	0	0	0	0	331	0	0	0	0
		11.428	60	685.65												
10	16.023				1,017	360	0	0	0	0	360	657	1	0	0	0
		22.811	60	1,368.66												
11	29.599				2,386	720	0	0	0	0	720	1,666	1	0	0	0
		38.93	60	2,335.62												
12	48.255				4,721	1,080	0	0	0	0	1,080	3,641	1	0	0	0
		59.61	60	3,576.78												
13	70.971				8,298	1,440	0	0	0	0	1,440	6,858	1	0	0	0
		82.43	60	4,945.95												
14	93.894				13,244	1,440	1,776	0	0	0	3,216	10,028	0	1	0	0
		103.78	60	6,226.83												
15	113.667				19,471	1,440	3,552	1,776	0	0	6,768	12,703	0	1	1	0
		121.00	60	7,260.06												
16	128.335				26,731	1,440	5,328	3,552	0	0	10,320	16,411	0	1	1	0
		132.85	60	7,971.27												
17	137.374				34,702	1,440	7,104	5,328	0	0	13,872	20,830	0	1	1	0
		139.35	60	8,361.06												
18	141.328				43,063	1,440	8,880	7,104	1,776	0	19,200	23,863	0	1	1	1
		141.26	60	8,475.63												
19	141.193				51,539	1,440	10,656	8,880	3,552	0	24,528	27,011	0	1	1	1
		139.64	60	8,378.22												
20	138.081				59,917	1,440	12,432	10,656	5,328	0	29,856	30,061	0	1	1	1

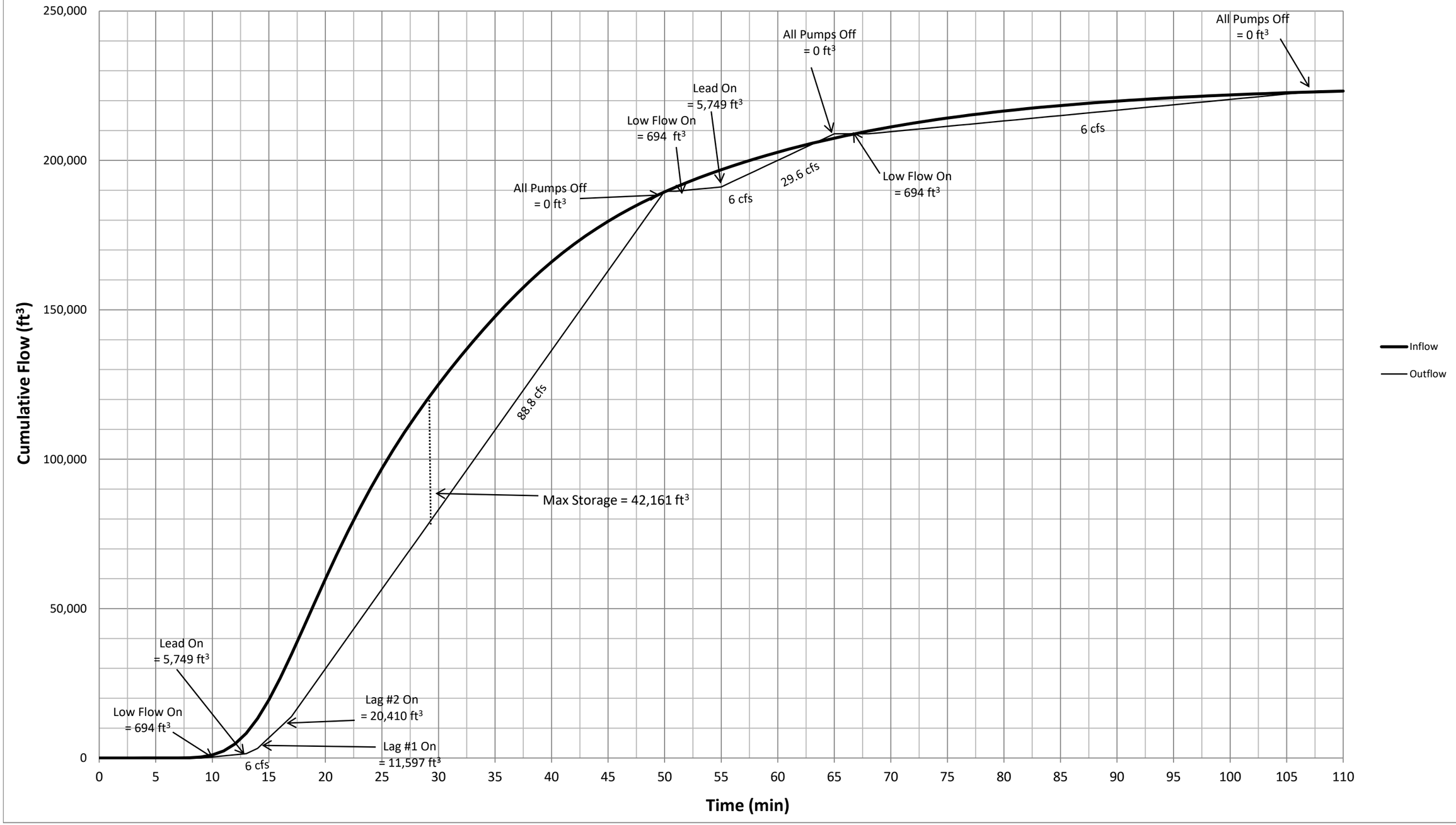
Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Cumulative Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)			
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2
		135.55	60	8,133.03												
21	133.02				68,050	1,440	14,208	12,432	7,104	0	35,184	32,866	0	1	1	1
		129.92	60	7,795.17												
22	126.819				75,845	1,440	15,984	14,208	8,880	0	40,512	35,333	0	1	1	1
		123.47	60	7,408.35												
23	120.126				83,254	1,440	17,760	15,984	10,656	0	45,840	37,414	0	1	1	1
		116.78	60	7,006.89												
24	113.437				90,260	1,440	19,536	17,760	12,432	0	51,168	39,092	0	1	1	1
		110.23	60	6,613.74												
25	107.021				96,874	1,440	21,312	19,536	14,208	0	56,496	40,378	0	1	1	1
		104.05	60	6,243.27												
26	101.088				103,117	1,440	23,088	21,312	15,984	0	61,824	41,293	0	1	1	1
		98.43	60	5,905.53												
27	95.763				109,023	1,440	24,864	23,088	17,760	0	67,152	41,871	0	1	1	1
		93.42	60	5,605.26												
28	91.079				114,628	1,440	26,640	24,864	19,536	0	72,480	42,148	0	1	1	1
		89.02	60	5,340.96												
29	86.953				119,969	1,440	28,416	26,640	21,312	0	77,808	42,161	0	1	1	1
		85.11	60	5,106.81												
30	83.274				125,076	1,440	30,192	28,416	23,088	0	83,136	41,940	0	1	1	1
		81.59	60	4,895.37												
31	79.905				129,971	1,440	31,968	30,192	24,864	0	88,464	41,507	0	1	1	1
		78.38	60	4,702.89												
32	76.858				134,674	1,440	33,744	31,968	26,640	0	93,792	40,882	0	1	1	1
		75.48	60	4,528.89												
33	74.105				139,203	1,440	35,520	33,744	28,416	0	99,120	40,083	0	1	1	1
		72.78	60	4,366.80												
34	71.455				143,570	1,440	37,296	35,520	30,192	0	104,448	39,122	0	1	1	1
		70.09	60	4,205.10												
35	68.715				147,775	1,440	39,072	37,296	31,968	0	109,776	37,999	0	1	1	1
		67.24	60	4,034.64												
36	65.773				151,810	1,440	40,848	39,072	33,744	0	115,104	36,706	0	1	1	1
		64.19	60	3,851.46												
37	62.609				155,661	1,440	42,624	40,848	35,520	0	120,432	35,229	0	1	1	1
		60.97	60	3,658.20												
38	59.331				159,319	1,440	44,400	42,624	37,296	0	125,760	33,559	0	1	1	1
		57.72	60	3,463.17												
39	56.108				162,783	1,440	46,176	44,400	39,072	0	131,088	31,695	0	1	1	1
		54.48	60	3,268.62												
40	52.846				166,051	1,440	47,952	46,176	40,848	0	136,416	29,635	0	1	1	1
		51.23	60	3,074.04												
41	49.622				169,125	1,440	49,728	47,952	42,624	0	141,744	27,381	0	1	1	1
		48.06	60	2,883.54												
42	46.496				172,009	1,440	51,504	49,728	44,400	0	147,072	24,937	0	1	1	1
		45.01	60	2,700.66												
43	43.526				174,709	1,440	53,280	51,504	46,176	0	152,400	22,309	0	1	1	1
		42.14	60	2,528.16												
44	40.746				177,238	1,440	55,056	53,280	47,952	0	157,728	19,510	0	1	1	1
		39.47	60	2,368.35												
45	38.199				179,606	1,440	56,832	55,056	49,728	0	163,056	16,550	0	1	1	1
		37.06	60	2,223.51												

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Cumulative Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)			
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2
46	35.918				181,829	1,440	58,608	56,832	51,504	0	168,384	13,445	0	1	1	1
		34.85	60	2,091.21												
47	33.789				183,921	1,440	60,384	58,608	53,280	0	173,712	10,209	0	1	1	1
		32.79	60	1,967.46												
48	31.793				185,888	1,440	62,160	60,384	55,056	0	179,040	6,848	0	1	1	1
		30.87	60	1,851.90												
49	29.937				187,740	1,440	63,936	62,160	56,832	0	184,368	3,372	0	1	1	1
		29.08	60	1,745.01												
50	28.23				189,485	1,440	65,712	63,936	58,608	0	189,696	0	0	1	1	1
		27.45	60	1,646.85												
51	26.665				191,132	1,440	65,712	63,936	58,608	0	189,696	1,436	0	0	0	0
		25.95	60	1,556.94												
52	25.233				192,689	1,800	65,712	63,936	58,608	0	190,056	2,633	1	0	0	0
		24.59	60	1,475.40												
53	23.947				194,164	2,160	65,712	63,936	58,608	0	190,416	3,748	1	0	0	0
		23.37	60	1,401.96												
54	22.785				195,566	2,520	65,712	63,936	58,608	0	190,776	4,790	1	0	0	0
		22.26	60	1,335.48												
55	21.731				196,902	2,880	65,712	63,936	58,608	0	191,136	5,766	1	0	0	0
		21.25	60	1,274.82												
56	20.763				198,176	2,880	67,488	63,936	58,608	0	192,912	5,264	0	1	0	0
		20.33	60	1,219.92												
57	19.901				199,396	2,880	69,264	63,936	58,608	0	194,688	4,708	0	1	0	0
		19.48	60	1,168.98												
58	19.065				200,565	2,880	71,040	63,936	58,608	0	196,464	4,101	0	1	0	0
		18.66	60	1,119.42												
59	18.249				201,685	2,880	72,816	63,936	58,608	0	198,240	3,445	0	1	0	0
		17.85	60	1,071.12												
60	17.455				202,756	2,880	74,592	63,936	58,608	0	200,016	2,740	0	1	0	0
		17.07	60	1,024.44												
61	16.693				203,780	2,880	76,368	63,936	58,608	0	201,792	1,988	0	1	0	0
		16.33	60	979.71												
62	15.964				204,760	2,880	78,144	63,936	58,608	0	203,568	1,192	0	1	0	0
		15.62	60	936.90												
63	15.266				205,697	2,880	79,920	63,936	58,608	0	205,344	353	0	1	0	0
		14.93	60	895.86												
64	14.596				206,593	2,880	81,696	63,936	58,608	0	207,120	0	0	1	0	0
		14.27	60	856.41												
65	13.951				207,449	2,880	83,472	63,936	58,608	0	208,896	0	0	1	0	0
		13.64	60	818.55												
66	13.334				208,268	2,880	83,472	63,936	58,608	0	208,896	0	0	0	0	0
		13.04	60	782.52												
67	12.75				209,050	2,880	83,472	63,936	58,608	0	208,896	154	0	0	0	0
		12.47	60	748.17												
68	12.189				209,798	2,880	83,472	63,936	58,608	0	208,896	902	0	0	0	0
		11.92	60	715.02												
69	11.645				210,513	3,240	83,472	63,936	58,608	0	209,256	1,257	1	0	0	0
		11.39	60	683.28												
70	11.131				211,197	3,600	83,472	63,936	58,608	0	209,616	1,581	1	0	0	0
		10.88	60	652.83												
71	10.63				211,850	3,960	83,472	63,936	58,608	0	209,976	1,874	1	0	0	0

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Cumulative Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)			
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2
		10.39	60	623.34												
72	10.148				212,473	4,320	83,472	63,936	58,608	0	210,336	2,137	1	0	0	0
		9.92	60	594.90												
73	9.682				213,068	4,680	83,472	63,936	58,608	0	210,696	2,372	1	0	0	0
		9.46	60	567.39												
74	9.231				213,635	5,040	83,472	63,936	58,608	0	211,056	2,579	1	0	0	0
		9.01	60	540.72												
75	8.793				214,176	5,400	83,472	63,936	58,608	0	211,416	2,760	1	0	0	0
		8.60	60	516.03												
76	8.408				214,692	5,760	83,472	63,936	58,608	0	211,776	2,916	1	0	0	0
		8.22	60	492.90												
77	8.022				215,185	6,120	83,472	63,936	58,608	0	212,136	3,049	1	0	0	0
		7.83	60	469.89												
78	7.641				215,655	6,480	83,472	63,936	58,608	0	212,496	3,159	1	0	0	0
		7.46	60	447.42												
79	7.273				216,102	6,840	83,472	63,936	58,608	0	212,856	3,246	1	0	0	0
		7.10	60	425.79												
80	6.92				216,528	7,200	83,472	63,936	58,608	0	213,216	3,312	1	0	0	0
		6.75	60	405.21												
81	6.587				216,933	7,560	83,472	63,936	58,608	0	213,576	3,357	1	0	0	0
		6.43	60	385.80												
82	6.273				217,319	7,920	83,472	63,936	58,608	0	213,936	3,383	1	0	0	0
		6.13	60	367.50												
83	5.977				217,686	8,280	83,472	63,936	58,608	0	214,296	3,390	1	0	0	0
		5.84	60	350.28												
84	5.699				218,037	8,640	83,472	63,936	58,608	0	214,656	3,381	1	0	0	0
		5.57	60	334.38												
85	5.447				218,371	9,000	83,472	63,936	58,608	0	215,016	3,355	1	0	0	0
		5.33	60	319.83												
86	5.214				218,691	9,360	83,472	63,936	58,608	0	215,376	3,315	1	0	0	0
		5.10	60	306.12												
87	4.99				218,997	9,720	83,472	63,936	58,608	0	215,736	3,261	1	0	0	0
		4.88	60	292.92												
88	4.774				219,290	10,080	83,472	63,936	58,608	0	216,096	3,194	1	0	0	0
		4.67	60	280.11												
89	4.563				219,570	10,440	83,472	63,936	58,608	0	216,456	3,114	1	0	0	0
		4.46	60	267.66												
90	4.359				219,838	10,800	83,472	63,936	58,608	0	216,816	3,022	1	0	0	0
		4.26	60	255.60												
91	4.161				220,093	11,160	83,472	63,936	58,608	0	217,176	2,917	1	0	0	0
		4.07	60	243.96												
92	3.971				220,337	11,520	83,472	63,936	58,608	0	217,536	2,801	1	0	0	0
		3.88	60	232.71												
93	3.786				220,570	11,880	83,472	63,936	58,608	0	217,896	2,674	1	0	0	0
		3.70	60	221.85												
94	3.609				220,792	12,240	83,472	63,936	58,608	0	218,256	2,536	1	0	0	0
		3.52	60	211.41												
95	3.438				221,003	12,600	83,472	63,936	58,608	0	218,616	2,387	1	0	0	0
		3.36	60	201.36												
96	3.274				221,205	12,960	83,472	63,936	58,608	0	218,976	2,229	1	0	0	0
		3.20	60	191.76												

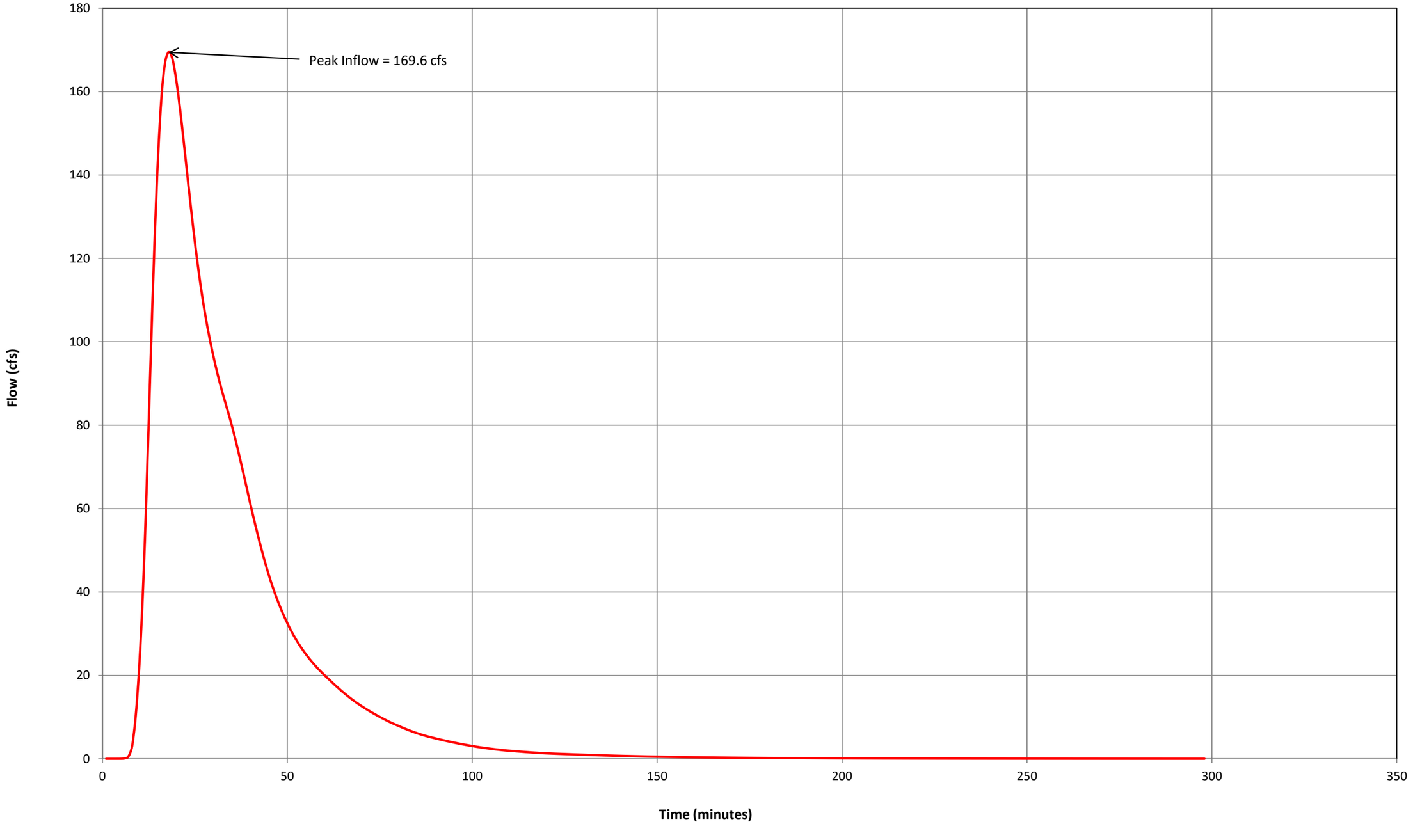
Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Cumulative Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)			
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2
97	3.118				221,396	13,320	83,472	63,936	58,608	0	219,336	2,060	1	0	0	0
		3.04	60	182.55												
98	2.967				221,579	13,680	83,472	63,936	58,608	0	219,696	1,883	1	0	0	0
		2.90	60	173.73												
99	2.824				221,753	14,040	83,472	63,936	58,608	0	220,056	1,697	1	0	0	0
		2.76	60	165.42												
100	2.69				221,918	14,400	83,472	63,936	58,608	0	220,416	1,502	1	0	0	0
		2.63	60	157.65												
101	2.565				222,076	14,760	83,472	63,936	58,608	0	220,776	1,300	1	0	0	0
		2.51	60	150.36												
102	2.447				222,226	15,120	83,472	63,936	58,608	0	221,136	1,090	1	0	0	0
		2.39	60	143.49												
103	2.336				222,370	15,480	83,472	63,936	58,608	0	221,496	874	1	0	0	0
		2.28	60	136.98												
104	2.23				222,507	15,840	83,472	63,936	58,608	0	221,856	651	1	0	0	0
		2.18	60	130.80												
105	2.13				222,637	16,200	83,472	63,936	58,608	0	222,216	421	1	0	0	0
		2.08	60	124.92												
106	2.034				222,762	16,560	83,472	63,936	58,608	0	222,576	186	1	0	0	0
		1.99	60	119.64												
107	1.954				222,882	16,920	83,472	63,936	58,608	0	222,936	0	1	0	0	0
		1.92	60	115.20												
108	1.886				222,997	17,280	83,472	63,936	58,608	0	223,296	0	1	0	0	0
		1.85	60	111.06												
109	1.816				223,108	17,280	83,472	63,936	58,608	0	223,296	0	0	0	0	0

Proposed Conditions Mass Curve Routing
50-Year, 30-Minute Event



100-YEAR, 30-MINUTE EVENT
PROPOSED CONDITIONS

Inflow Hydrograph
100-Year, 30-min Design Storm



100-Year, 30-Minute Design Storm Event

	LOW FLOW	LEAD	LAG #1	LAG #2	
Pump 'ON' Volume (ft^3)	710	5,767	11,576	20,546	
Pump 'ON' Elevation (ft)	558.2	562.7	563.7	564.7	
Pump Flow Rate (cfs)	6.0	29.6	29.6	29.6	

	LOW FLOW	LEAD	LAG #1	LAG #2	
Pump 'OFF' Volume (ft^3)	0	710	710	710	
Pump 'OFF' Elevation (ft)	557.2	558.2	558.2	558.2	

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Cumulative Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)			
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2
1	0				0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0												
2	0				0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0												
3	0				0	0	0	0	0	0	0	0	0	0	0	0
		0	60	0												
4	0.002				0	0	0	0	0	0	0	0	0	0	0	0
		0	60	1												
5	0.016				1	0	0	0	0	0	0	0	0	0	0	0
		0	60	3												
6	0.097				4	0	0	0	0	0	0	0	0	0	0	0
		0	60	19												
7	0.53				23	0	0	0	0	0	0	0	0	0	0	0
		2	60	105												
8	2.961				128	0	0	0	0	0	0	128	0	0	0	0
		7	60	401												
9	10.392				528	0	0	0	0	0	0	528	0	0	0	0
		16.690	60	1,001.40												
10	22.988				1,530	360	0	0	0	0	360	1,170	1	0	0	0
		32.236	60	1,934.16												
11	41.484				3,464	720	0	0	0	0	720	2,744	1	0	0	0
		53.97	60	3,238.17												
12	66.455				6,702	1,080	0	0	0	0	1,080	5,622	1	0	0	0
		80.72	60	4,843.08												
13	94.981				11,545	1,080	1,776	0	0	0	2,856	8,689	0	1	0	0
		108.49	60	6,509.58												
14	122.005				18,055	1,080	3,552	1,776	0	0	6,408	11,647	0	1	1	0
		132.99	60	7,979.37												
15	143.974				26,034	1,080	5,328	3,552	0	0	9,960	16,074	0	1	1	0
		151.60	60	9,095.76												
16	159.218				35,130	1,080	7,104	5,328	0	0	13,512	21,618	0	1	1	0
		163.27	60	9,796.08												
17	167.318				44,926	1,080	8,880	7,104	1,776	0	18,840	26,086	0	1	1	1
		168.45	60	10,107.09												
18	169.585				55,033	1,080	10,656	8,880	3,552	0	24,168	30,865	0	1	1	1
		168.56	60	10,113.72												
19	167.539				65,147	1,080	12,432	10,656	5,328	0	29,496	35,651	0	1	1	1
		165.02	60	9,901.02												
20	162.495				75,048	1,080	14,208	12,432	7,104	0	34,824	40,224	0	1	1	1
		159.06	60	9,543.42												
21	155.619				84,591	1,080	15,984	14,208	8,880	0	40,152	44,439	0	1	1	1
		151.68	60	9,101.01												

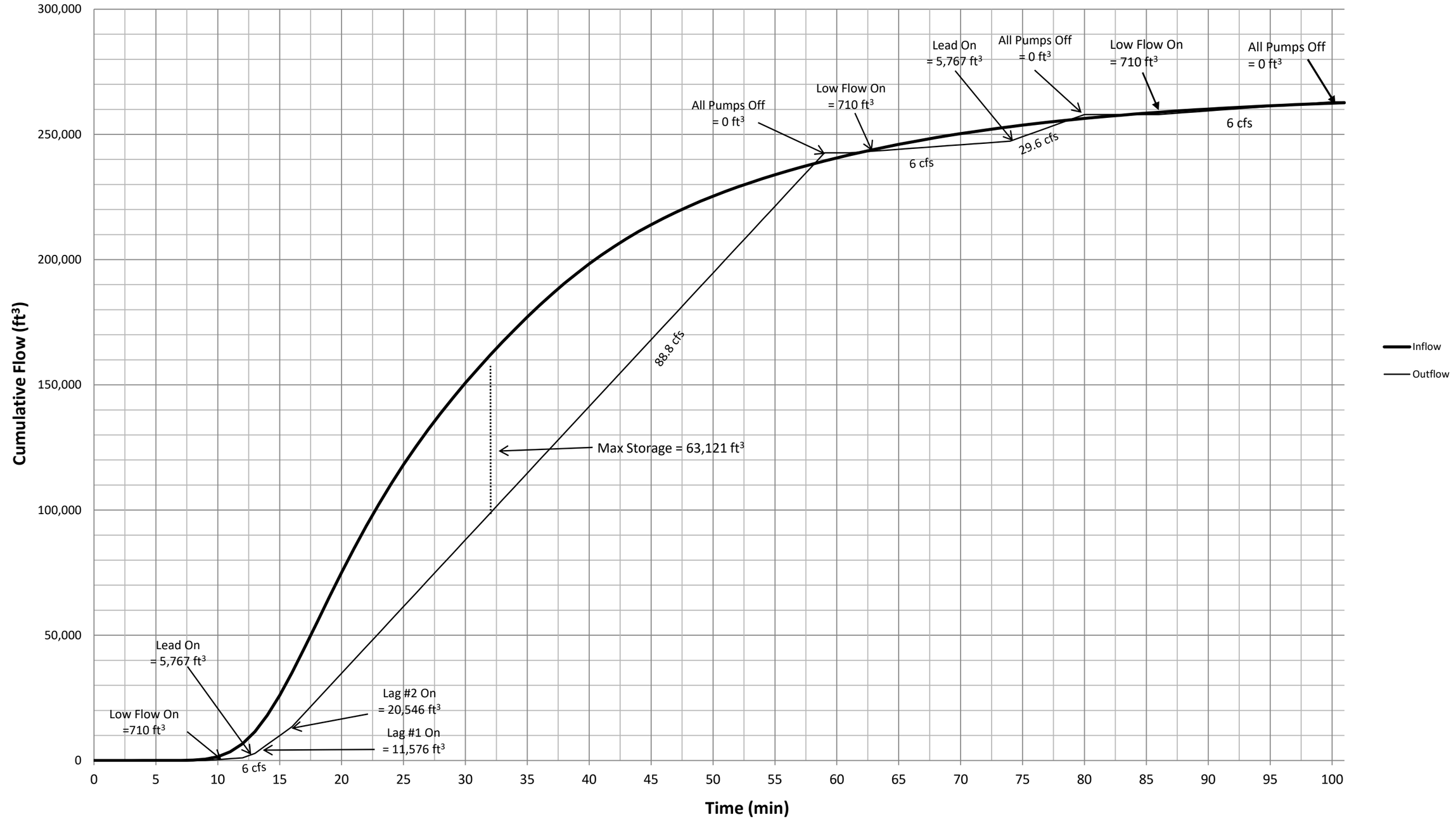
Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Cumulative Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)			
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2
22	147.748				93,692	1,080	17,760	15,984	10,656	0	45,480	48,212	0	1	1	1
		143.65	60	8,619.06												
23	139.554				102,311	1,080	19,536	17,760	12,432	0	50,808	51,503	0	1	1	1
		135.52	60	8,130.99												
24	131.479				110,442	1,080	21,312	19,536	14,208	0	56,136	54,306	0	1	1	1
		127.68	60	7,660.50												
25	123.871				118,103	1,080	23,088	21,312	15,984	0	61,464	56,639	0	1	1	1
		120.39	60	7,223.64												
26	116.917				125,326	1,080	24,864	23,088	17,760	0	66,792	58,534	0	1	1	1
		113.85	60	6,830.88												
27	110.779				132,157	1,080	26,640	24,864	19,536	0	72,120	60,037	0	1	1	1
		108.10	60	6,485.88												
28	105.417				138,643	1,080	28,416	26,640	21,312	0	77,448	61,195	0	1	1	1
		103.07	60	6,184.47												
29	100.732				144,827	1,080	30,192	28,416	23,088	0	82,776	62,051	0	1	1	1
		98.63	60	5,917.98												
30	96.534				150,745	1,080	31,968	30,192	24,864	0	88,104	62,641	0	1	1	1
		94.62	60	5,677.23												
31	92.707				156,423	1,080	33,744	31,968	26,640	0	93,432	62,991	0	1	1	1
		90.98	60	5,458.59												
32	89.246				161,881	1,080	35,520	33,744	28,416	0	98,760	63,121	0	1	1	1
		87.67	60	5,260.29												
33	86.097				167,141	1,080	37,296	35,520	30,192	0	104,088	63,053	0	1	1	1
		84.58	60	5,074.50												
34	83.053				172,216	1,080	39,072	37,296	31,968	0	109,416	62,800	0	1	1	1
		81.45	60	4,887.24												
35	79.855				177,103	1,080	40,848	39,072	33,744	0	114,744	62,359	0	1	1	1
		78.13	60	4,687.56												
36	76.397				181,791	1,080	42,624	40,848	35,520	0	120,072	61,719	0	1	1	1
		74.55	60	4,473.27												
37	72.712				186,264	1,080	44,400	42,624	37,296	0	125,400	60,864	0	1	1	1
		70.80	60	4,248.15												
38	68.893				190,512	1,080	46,176	44,400	39,072	0	130,728	59,784	0	1	1	1
		66.95	60	4,016.76												
39	64.999				194,529	1,080	47,952	46,176	40,848	0	136,056	58,473	0	1	1	1
		63.04	60	3,782.13												
40	61.072				198,311	1,080	49,728	47,952	42,624	0	141,384	56,927	0	1	1	1
		59.19	60	3,551.40												
41	57.308				201,863	1,080	51,504	49,728	44,400	0	146,712	55,151	0	1	1	1
		55.51	60	3,330.30												
42	53.702				205,193	1,080	53,280	51,504	46,176	0	152,040	53,153	0	1	1	1
		51.98	60	3,118.86												
43	50.26				208,312	1,080	55,056	53,280	47,952	0	157,368	50,944	0	1	1	1
		48.65	60	2,918.76												
44	47.032				211,230	1,080	56,832	55,056	49,728	0	162,696	48,534	0	1	1	1
		45.54	60	2,732.34												
45	44.046				213,963	1,080	58,608	56,832	51,504	0	168,024	45,939	0	1	1	1
		42.67	60	2,560.38												
46	41.3				216,523	1,080	60,384	58,608	53,280	0	173,352	43,171	0	1	1	1
		40.04	60	2,402.58												
47	38.786				218,926	1,080	62,160	60,384	55,056	0	178,680	40,246	0	1	1	1
		37.65	60	2,259.06												
48	36.516				221,185	1,080	63,936	62,160	56,832	0	184,008	37,177	0	1	1	1
		35.47	60	2,128.41												

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Cumulative Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)			
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2
49	34.431				223,313	1,080	65,712	63,936	58,608	0	189,336	33,977	0	1	1	1
		33.47	60	2,008.02												
50	32.503				225,321	1,080	67,488	65,712	60,384	0	194,664	30,657	0	1	1	1
		31.62	60	1,897.17												
51	30.736				227,218	1,080	69,264	67,488	62,160	0	199,992	27,226	0	1	1	1
		29.93	60	1,795.89												
52	29.127				229,014	1,080	71,040	69,264	63,936	0	205,320	23,694	0	1	1	1
		28.40	60	1,703.73												
53	27.664				230,718	1,080	72,816	71,040	65,712	0	210,648	20,070	0	1	1	1
		26.99	60	1,619.61												
54	26.323				232,338	1,080	74,592	72,816	67,488	0	215,976	16,362	0	1	1	1
		25.70	60	1,542.09												
55	25.08				233,880	1,080	76,368	74,592	69,264	0	221,304	12,576	0	1	1	1
		24.51	60	1,470.63												
56	23.941				235,350	1,080	78,144	76,368	71,040	0	226,632	8,718	0	1	1	1
		23.41	60	1,404.72												
57	22.883				236,755	1,080	79,920	78,144	72,816	0	231,960	4,795	0	1	1	1
		22.39	60	1,343.37												
58	21.896				238,098	1,080	81,696	79,920	74,592	0	237,288	810	0	1	1	1
		21.43	60	1,285.68												
59	20.96				239,384	1,080	83,472	81,696	76,368	0	242,616	0	0	1	1	1
		20.53	60	1,231.65												
60	20.095				240,616	1,080	83,472	81,696	76,368	0	242,616	0	0	0	0	0
		19.67	60	1,180.35												
61	19.25				241,796	1,080	83,472	81,696	76,368	0	242,616	0	0	0	0	0
		18.83	60	1,129.86												
62	18.412				242,926	1,440	83,472	81,696	76,368	0	242,976	0	1	0	0	0
		18.00	60	1,079.85												
63	17.583				244,006	1,800	83,472	81,696	76,368	0	243,336	670	1	0	0	0
		17.18	60	1,030.83												
64	16.778				245,037	2,160	83,472	81,696	76,368	0	243,696	1,341	1	0	0	0
		16.39	60	983.58												
65	16.008				246,020	2,520	83,472	81,696	76,368	0	244,056	1,964	1	0	0	0
		15.64	60	938.46												
66	15.274				246,959	2,880	83,472	81,696	76,368	0	244,416	2,543	1	0	0	0
		14.92	60	895.44												
67	14.574				247,854	3,240	83,472	81,696	76,368	0	244,776	3,078	1	0	0	0
		14.24	60	854.34												
68	13.904				248,708	3,600	83,472	81,696	76,368	0	245,136	3,572	1	0	0	0
		13.59	60	815.22												
69	13.27				249,524	3,960	83,472	81,696	76,368	0	245,496	4,028	1	0	0	0
		12.97	60	778.23												
70	12.671				250,302	4,320	83,472	81,696	76,368	0	245,856	4,446	1	0	0	0
		12.39	60	743.13												
71	12.1				251,045	4,680	83,472	81,696	76,368	0	246,216	4,829	1	0	0	0
		11.83	60	709.56												
72	11.552				251,755	5,040	83,472	81,696	76,368	0	246,576	5,179	1	0	0	0
		11.29	60	677.49												
73	11.031				252,432	5,400	83,472	81,696	76,368	0	246,936	5,496	1	0	0	0
		10.78	60	646.71												

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Cumulative Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)			
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2
74	10.526				253,079	5,760	83,472	81,696	76,368	0	247,296	5,783	1	0	0	0
		10.28	60	616.95												
75	10.039				253,696	5,760	85,248	81,696	76,368	0	249,072	4,624	0	1	0	0
		9.80	60	588.24												
76	9.569				254,284	5,760	87,024	81,696	76,368	0	250,848	3,436	0	1	0	0
		9.34	60	560.46												
77	9.113				254,844	5,760	88,800	81,696	76,368	0	252,624	2,220	0	1	0	0
		8.90	60	533.82												
78	8.681				255,378	5,760	90,576	81,696	76,368	0	254,400	978	0	1	0	0
		8.49	60	509.22												
79	8.293				255,887	5,760	92,352	81,696	76,368	0	256,176	0	0	1	0	0
		8.10	60	485.82												
80	7.901				256,373	5,760	94,128	81,696	76,368	0	257,952	0	0	1	0	0
		7.71	60	462.54												
81	7.517				256,836	5,760	94,128	81,696	76,368	0	257,952	0	0	0	0	0
		7.33	60	439.95												
82	7.148				257,276	5,760	94,128	81,696	76,368	0	257,952	0	0	0	0	0
		6.97	60	418.35												
83	6.797				257,694	5,760	94,128	81,696	76,368	0	257,952	0	0	0	0	0
		6.63	60	397.89												
84	6.466				258,092	5,760	94,128	81,696	76,368	0	257,952	140	0	0	0	0
		6.31	60	378.63												
85	6.155				258,471	5,760	94,128	81,696	76,368	0	257,952	519	0	0	0	0
		6.01	60	360.51												
86	5.862				258,831	5,760	94,128	81,696	76,368	0	257,952	879	0	0	0	0
		5.73	60	343.62												
87	5.592				259,175	6,120	94,128	81,696	76,368	0	258,312	863	1	0	0	0
		5.47	60	328.20												
88	5.348				259,503	6,480	94,128	81,696	76,368	0	258,672	831	1	0	0	0
		5.23	60	313.98												
89	5.118				259,817	6,840	94,128	81,696	76,368	0	259,032	785	1	0	0	0
		5.01	60	300.45												
90	4.897				260,117	7,200	94,128	81,696	76,368	0	259,392	725	1	0	0	0
		4.79	60	287.43												
91	4.684				260,405	7,560	94,128	81,696	76,368	0	259,752	653	1	0	0	0
		4.58	60	274.80												
92	4.476				260,680	7,920	94,128	81,696	76,368	0	260,112	568	1	0	0	0
		4.38	60	262.53												
93	4.275				260,942	8,280	94,128	81,696	76,368	0	260,472	470	1	0	0	0
		4.18	60	250.65												
94	4.08				261,193	8,640	94,128	81,696	76,368	0	260,832	361	1	0	0	0
		3.99	60	239.16												
95	3.892				261,432	9,000	94,128	81,696	76,368	0	261,192	240	1	0	0	0
		3.80	60	228.09												
96	3.711				261,660	9,360	94,128	81,696	76,368	0	261,552	108	1	0	0	0
		3.62	60	217.44												
97	3.537				261,878	9,720	94,128	81,696	76,368	0	261,912	0	1	0	0	0
		3.45	60	207.18												
98	3.369				262,085	10,080	94,128	81,696	76,368	0	262,272	0	1	0	0	0
		3.29	60	197.34												
99	3.209				262,282	10,440	94,128	81,696	76,368	0	262,632	0	1	0	0	0
		3.13	60	187.92												
100	3.055				262,470	10,800	94,128	81,696	76,368	0	262,992	0	1	0	0	0
		2.98	60	178.86												

Time (min)	Inflow (cfs)	Average Inflow (cfs)	Time Increment (sec)	Incremental Flow (ft^3)	Cumulative Inflow (ft^3)	Cumulative Pump Outflows (ft^3)					Total Outflow (ft^3)	Required Storage (ft^3)	On-Off Counters (1=On / 0=Off)			
						Low Flow	Lead	Lag #1	Lag#2	Stand-By			Low Flow	Lead	Lag #1	Lag #2
101	2.907				262,649	10,800	94,128	81,696	76,368	0	262,992	0	0	0	0	0

Proposed Conditions Mass Curve Routing
100-Year, 30-Minute Event



Section 12
Pump Cycling Time Calculations

CHRISTOPHER B. BURKE
ENGINEERING, LTD.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500 Fax (847) 823-0520

JOB IDOT PS #30 (11-0203,00001)
SHEET NO. 1 OF 1
CALCULATED BY KCB DATE 12/14/2021
CHECKED BY JPC DATE 12/15/2021
SCALE PUMP CYCLING CALCULATION

MAIN PUMPS

PUMPING RATE = 13,300 GPM

USABLE STORAGE (EL. 558.2 TO EL 562.70) = 3,381 CF

STORAGE VOLUME = USABLE STORAGE X 7.48 GAL/CF
= 3,381 CF x 7.48 GAL/CF
= 25,290 GAL ✓ JPC

CYCLING TIME (BASED ON HEC 24 SECTION 7.2.9.1)

$$\text{CYCLING TIME} = \frac{4 \times \text{VOLUME}}{\text{PUMPING RATE}}$$

$$= \frac{4 \times 25{,}290 \text{ GAL}}{13{,}300 \text{ GAL/MIN.}}$$

= 7.6 MIN. ✓ JPC

$$\text{CONVERTING TO STARTS/HR} = \frac{60 \text{ MIN/HR}}{\text{CYCLING TIME}}$$

$$= \frac{60 \text{ MIN/HR}}{7.6 \text{ MIN/START}}$$

$$= 7.9 \frac{\text{STARTS}}{\text{HR}} < 15 \frac{\text{STARTS}}{\text{HR}} \quad ✓ \quad ✓ \text{JPC}$$

MAX STARTS/HR (BASED ON PUMP MFG MOTOR DATA) = 15 STARTS/HR.

CHRISTOPHER B. BURKE
ENGINEERING, LTD.
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Rosemont, Illinois 60018
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JOB IDOT PS #30 (11-0203.00001)
SHEET NO. 1 OF 1
CALCULATED BY ICB DATE 12/14/2021
CHECKED BY DATE
SCALE PUMP CYCLING CALCULATION

LOW FLOW PUMPS

PUMPING RATE = 2,700 GPM (BASED ON PUMP NAMEPLATE)

USABLE STORAGE (EL. 557.2 TO EL. 558.2) = 710 CF

STORAGE VOLUME = USABLE STORAGE × 7.48 GAL/CF
= 710 CF × 7.48 GAL/CF
= 5,311 GAL ✓ JPC

CYCLING TIME (BASED ON HEC 22 SECTION 7.2.9.1)

$$\text{CYCLING TIME} = \frac{4 \times \text{VOLUME}}{\text{PUMPING RATE}}$$

$$= \frac{4 \times 5311 \text{ GAL}}{2{,}700 \text{ GAL/MIN}}$$

= 7.8 MIN ✓ JPC

$$\text{CONVERTING TO STARTS/HR} = \frac{60 \text{ MIN/HR}}{\text{CYCLING TIME}}$$

$$= \frac{60 \text{ MIN/HR}}{7.8 \text{ MIN/START}}$$

$$= 7.7 \text{ STARTS/HR} < 8 \text{ STARTS/HR}$$ ✓ ✓ JPC

MAX STARTS/HR (BASED ON GRUNDFOS EMAIL DATED 2/7/2017) = 8 STARTS/HR

PUMP DETAILS

CLOW

Pump Division
Clow Corporation
Melrose Park, Illinois

Clow Yeomans
SERIES 9000

QUICK LIFT ASSEMBLY

Dual Rail
(Dwg. No. 104127) BX

Customer: ALD-CASS ELECTRIC, INC. Conditions: 2800 USGPM @ 48 Ft. TDH

P.O.: 50874 50 HP 1160 RPM 460 Vac. 3 - Ph. 60 Hertz

Name of Job: I.L. DEPT. OF TRANSP. S.O. No.: 266677

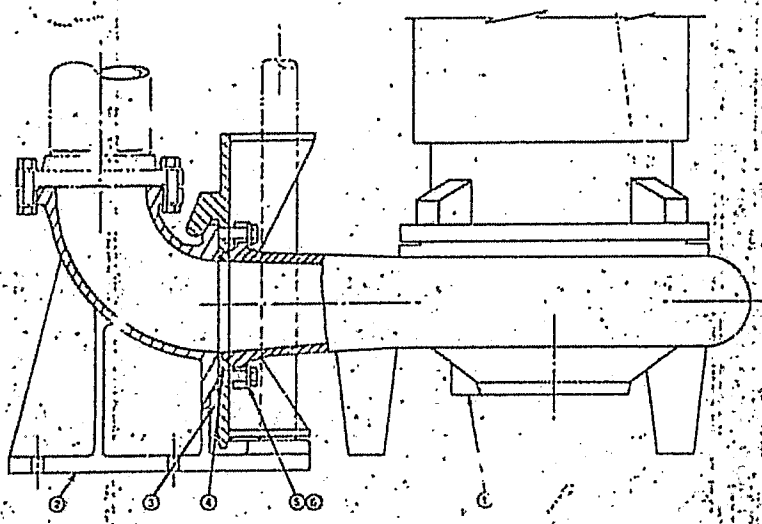
Pump Model: 8x8x18x5SC Mfr. Frame 320TY Marks: P.S. #30 (LOW FLOW PUMP)

COMPONENT & MATERIALS LIST

ITEM	QTY	DESCRIPTION NAME	STANDARD MATERIAL	UL LISTED (Non-Sparking)	
1	1	Series 9000 Submersible Pump & Motor Ass'y.			
2	1	Quick Lift Stationary Base ELL	Cast Iron	Cast Iron	
3	1	Quick Lift Side Plate	Cast Iron	Bronze	
4	1	Sealing Washer	Neoprene	Neoprene	
5	8/12	Hex Hd. Cap Screws	Steel	S.S. Bronze	
6	8/12	Lockwasher-Spring Type	Steel	S.S. Bronze	

ADAPTATION OF 4" PUMP TO DUAL RAIL SYSTEM

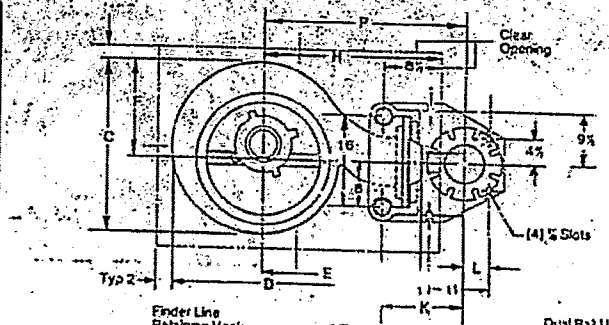
7	1	Adapter-4" to Side Plate (Not Shown-Furnished Only When Req'd.)	Cast Iron	Cast Iron	
8	0	Socket Hd. Cap Screws	Steel	S.S. Bronze	

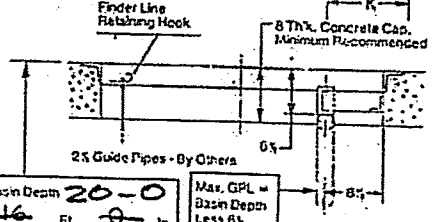


Prepared by: _____ Date: _____

SERIES 9000 SUBMERSIBLE PUMPS

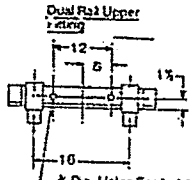
With Dual Rail Quick Lift Fittings - 8 x 8, 8 x 10
Pump Units 8 x 8 x 15 x 5; 8 x 8 x 17 x 4; 8 x 8 x 18 x 5
(Dwg. No. 104060-C) X



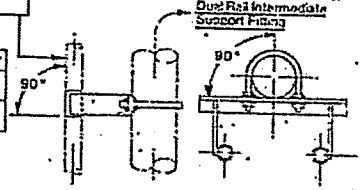


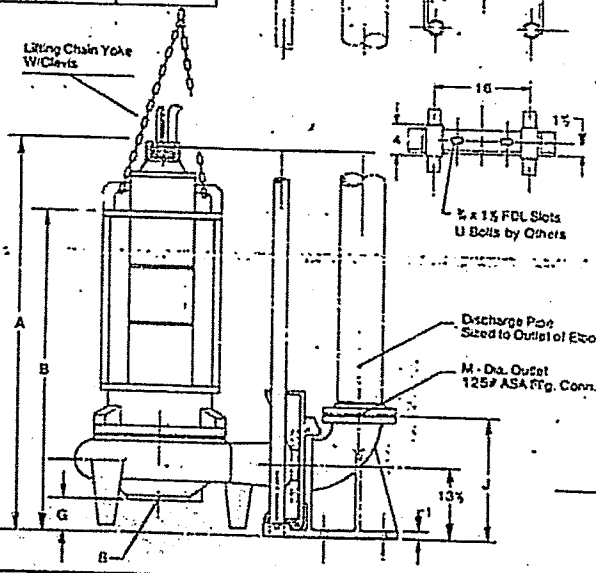
Basin Depth 20 - 0
16 Ft. 0 In.

Max. GPL = Basin Depth Less 6¾



LIFTING CHAIN	210-250TY	320TY	360TY
CHAIN SIZE	¼"	⅜"	½"
CABLE SIZE	¼"	⅜"	





SUBMERSIBLE

Squirrel Cage Induction Motors
Totally Enclosed Non-Ventilated
W/Thermal Protection/Moisture Detection
UL Approved Class 1 Groups C & D
TY Motor Frame/HP Ratings

THREE PHASE

200 • 230 • 460 • 575 VAC

MOTOR HP	OPERATING RPM 1750	1160	875
5	210	210	210
7½			
10			250
15		250	
20			320
25	250		
30		320	
40			
50	320		360
60		360	
75			
100	360		
125			
150			

Customer: ALD-CASS ELECTRIC, INC.

P.O. No.: 50874

Name of Job: ILL. DEPT. OF TRANSP. (PUMP STA. #30)

Pump Model: 8x8x18x5 SC Mtr. Frame: 320TY

Conditions: 2800 USGPM@ 48 FT. TDH:

50 HP; 1160 RPM; 460 Vac: 3 Ph; 60 Hertz;

S.O. No.: 266677

Marks: P.S. #30 (LOW FLOW PUMP)

- Quick Lift Assembly (Pump - Slide Plate Ass'y.)
  - Standard (All Iron)
  - UL Listed (Non-Sparking)

MODEL	RECOMMENDED CLEAR OPENING (L x W)
8x8x15x5	12 x 33
8x8x17x4	44 x 37

QUICK LIFT STATIONARY ELL	J	K	L	M	WT. (LBS)
8x8	22¾	13	5	6	292
8x10	24¾	15	3	10	337

SERIES 9000 MODEL UNIT	MOTOR FRAME	A	B	UNIT WT. #	GUIDE PIPE SCH. NO.	GUIDE PIPE MAX. SECT. LG'TH	C	D	E	F	G	H	P 8x8	P 8x10
8x8x15x5	250	53 3/4	43¾	1359	40	12'-0	28¼	37	23⅝	14½	6¾	26½	31	33
	320	57 13/16	45 5/16	1639	80	10'-0								
	360	63	52 3/8	2109	80	8'-0								
~~8x8x17x4~~	320	58 1/16	46 3/16	1883	40	10'-0	29 11/16	38 11/16	23⅝	16 1/16	6	26½	31	33
8x8x18x5	~~360~~	62 3/4	~~52~~	2800	~~80~~	~~8'-0~~								

All Dimensions in inches. Subject to change without notice. "C" REV. 1-88 UPDATED

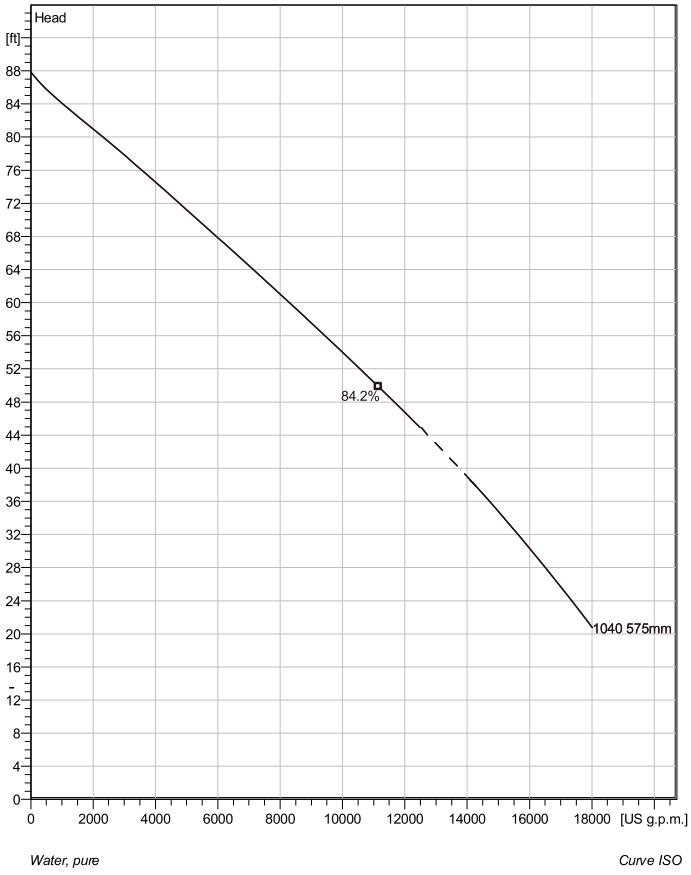
/82 DRAWER 33 9000 SERIES Page 59

YEOMANS SERIES 9000

104060-C

CP 3531/765 3~ 1040

Technical specification



Water, pure *Curve ISO*

Note: Picture might not correspond to the current configuration.

General

Shrouded single or multi-channel impeller pumps with large throughlets and single volute pump casing for liquids containing solids and fibres. Cast iron design with double sealing technology.

Impeller

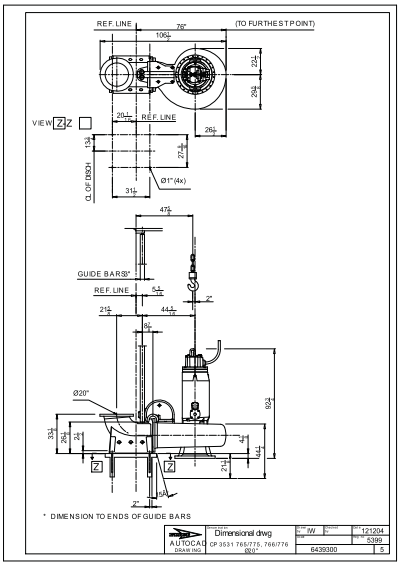
Impeller material	Grey cast iron
Discharge Flange Diameter	19 11/16 inch
Inlet diameter	23 5/8 inch
Impeller diameter	575 mm
Number of blades	3
4 1/8 inch	4 1/8 inch

Motor

Motor #	C0765.000 43-56-10AA-W 170hp
Approval	Standard
Stator variant	1
Frequency	60 Hz
Rated voltage	460 V
Number of poles	10
Phases	3~
Rated power	170 hp
Rated current	231 A
Starting current	889 A
Rated speed	705 rpm
Power factor	
1/1 Load	0.75
3/4 Load	0.72
1/2 Load	0.62
Motor efficiency	
1/1 Load	91.5 %
3/4 Load	92.0 %
1/2 Load	91.0 %

Configuration

Installation: P - Semi permanent, Wet



Project	Project ID	Created by	Created on	Last update
			29.09.2016	

CP 3531/765 3~ 1040

Performance curve

Pump

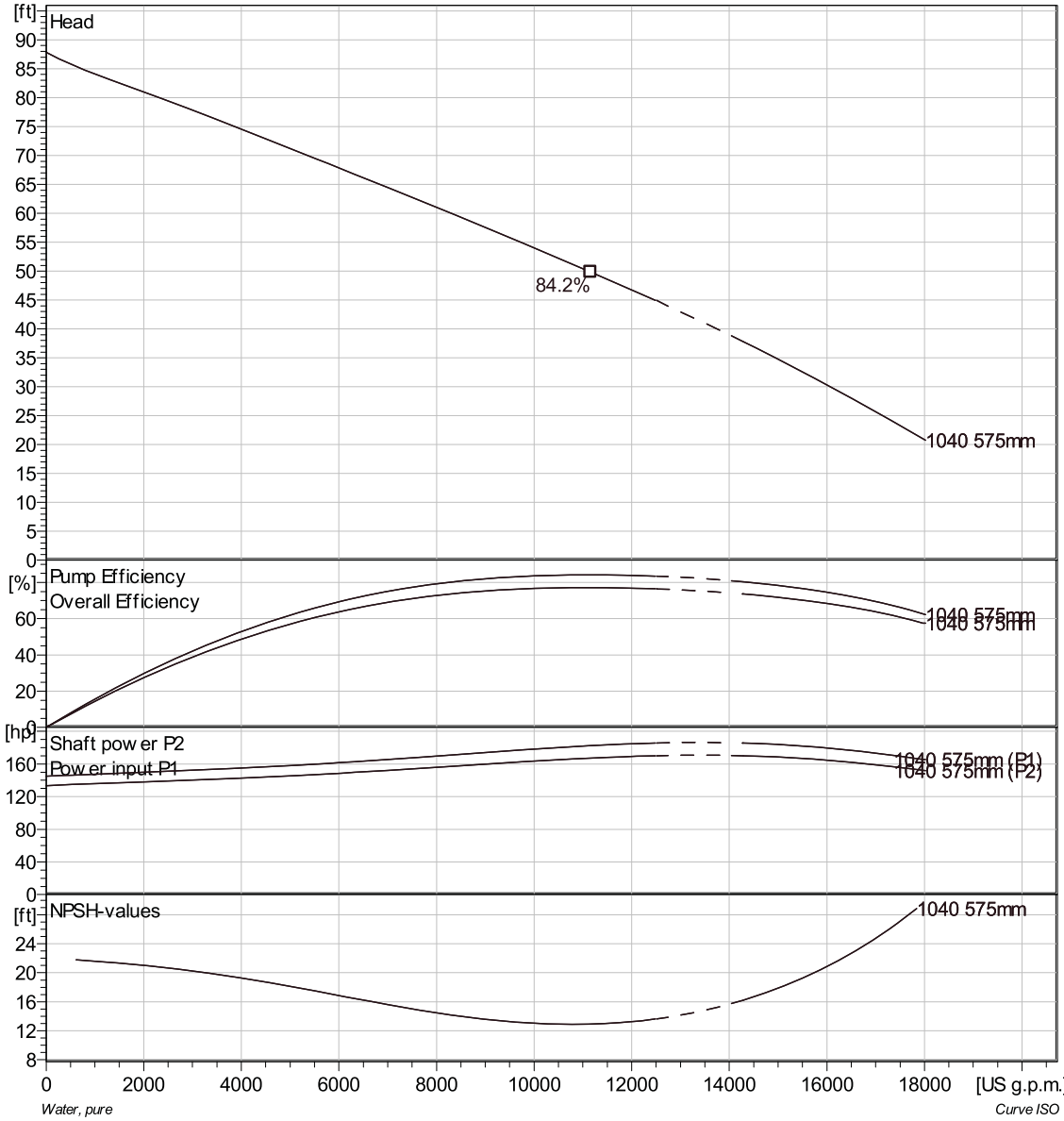
Discharge Flange Diameter	19 11/16 inch
Inlet diameter	600 mm
Impeller diameter	22 5/8"
Number of blades	3
4 1/8 inch	4 1/8 inch

Motor

Motor #	C0765.000 43-56-10AA-W 170hp
Approval	Standard
Stator variant	1
Frequency	60 Hz
Rated voltage	460 V
Number of poles	10
Phases	3~
Rated power	170 hp
Rated current	231 A
Starting current	889 A
Rated speed	705 rpm

Power factor	
1/1 Load	0.75
3/4 Load	0.72
1/2 Load	0.62

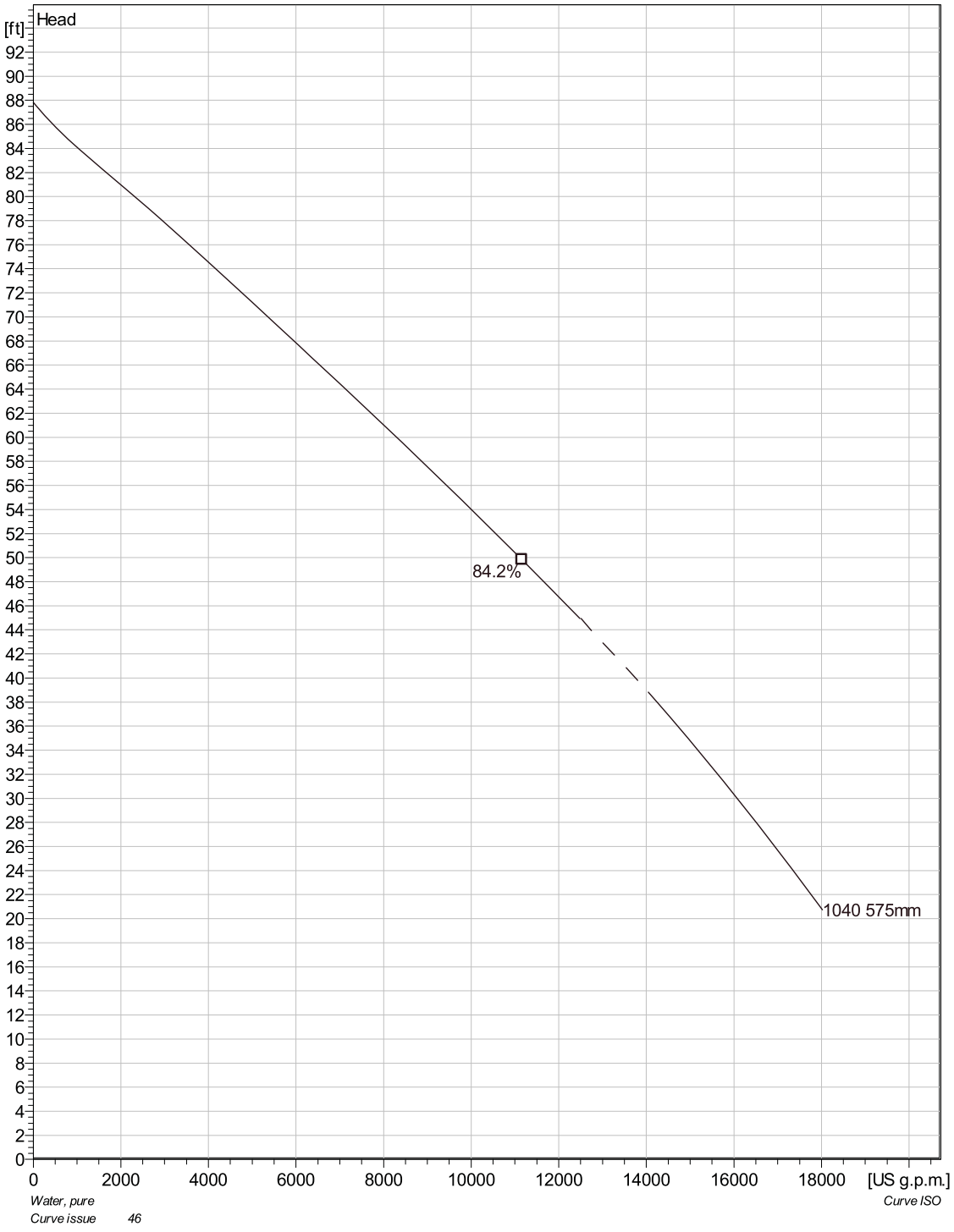
Motor efficiency	
1/1 Load	91.5 %
3/4 Load	92.0 %
1/2 Load	91.0 %



Project	Project ID	Created by	Created on	Last update
			29.09.2016	

CP 3531/765 3~ 1040

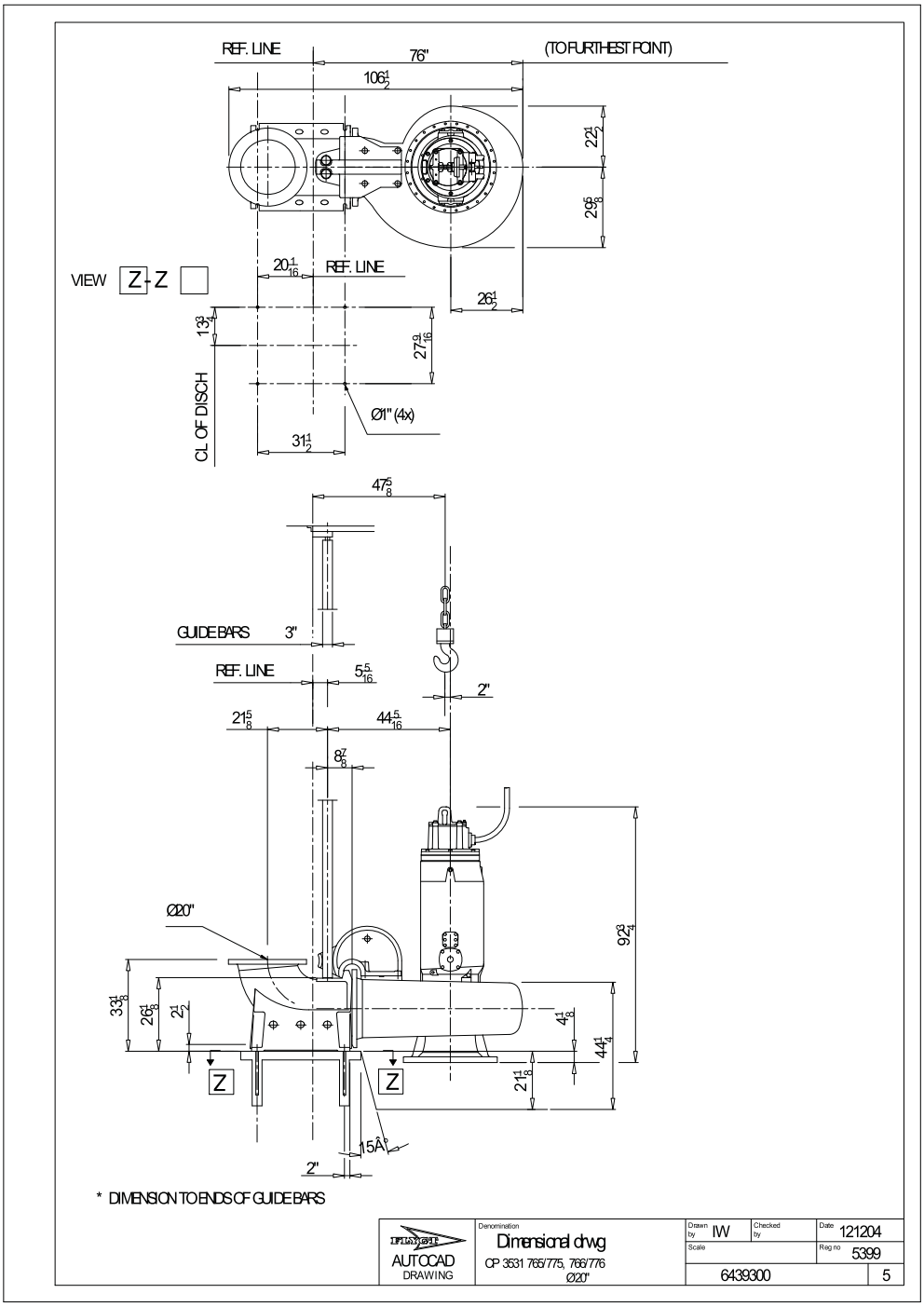
Duty Analysis



Project	Project ID	Created by	Created on	Last update
			29.09.2016	

CP 3531/765 3~ 1040

Dimensional drawing



Project	Project ID	Created by	Created on	Last update
			29.09.2016	

RESULTS | CONFIGURE | ANALYZE

PERFORMANCE CURVE +

INSTALLATION +

MOTOR −

MOTOR EFFICIENCY CLASS:
Standard

MOTOR DESIGN:
3 PH STD W

VOLTAGE RANGE:
Standard (<= 2000 V)

MOTOR:
170 hp 43-56-10AA

RATED POWER:
170 hp

RATED VOLTAGE:
460 V D (dv:533 V)

RATED CURRENT:
231 A

EXPLOSION-PROOF VERSION:
--

MATERIALS +

PRODUCT VERSION +

CP 3531/765 3~ 1040

On req.
60 Hz | 170 hp | 460 V

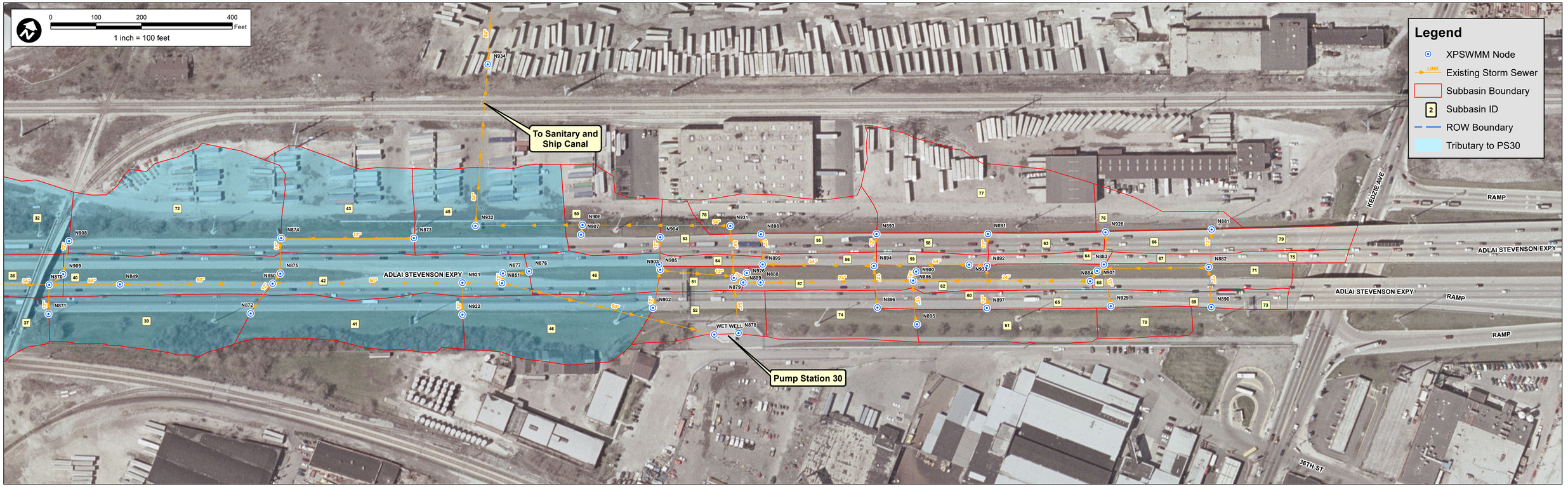
ABOUT THIS PRODUCT

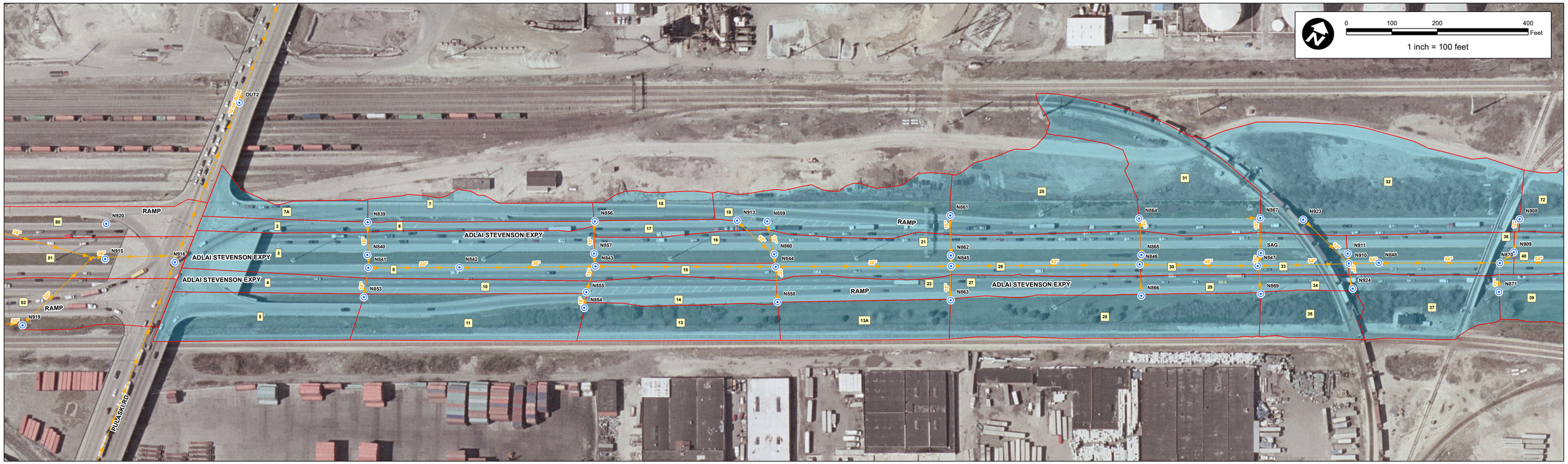
MOTOR DATA

Information

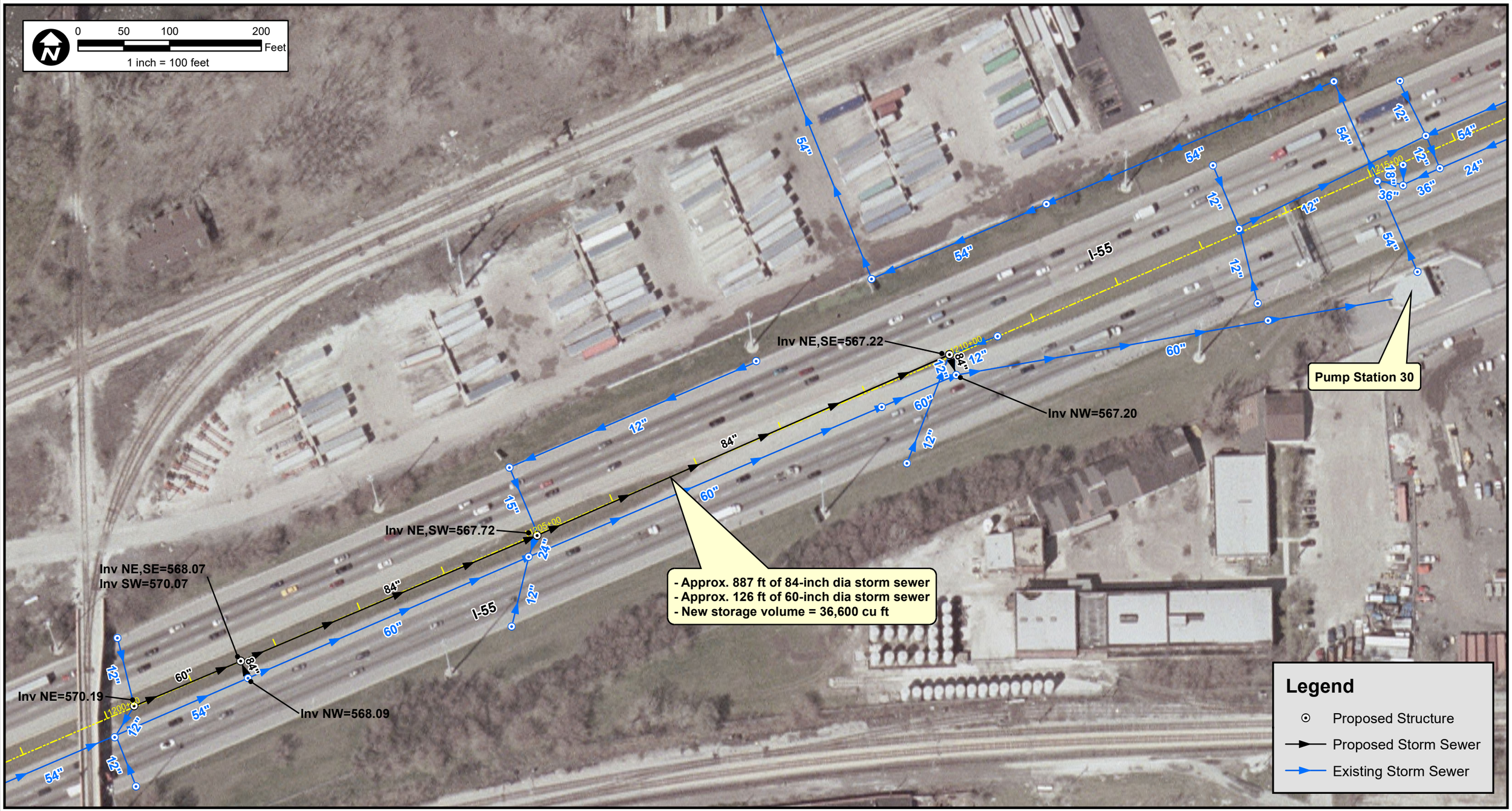
Name	C0765.000 43-56-10AA-W 170hp
Frequency	60 Hz
Rated power	170 hp
Number of poles	10
Speed	705 rpm
1-phase / 3-phase	3~
Rated voltage	460 V
Rated current	231 A
Starting current	889 A
Starting current, direct starting	889 A
Starting current, star-delta	296 A
Starting to rated current (direct starting)	3.85
Insulation class	H
Approval	STD
Total moment of inertia	300.8 lb ft²
Type of Duty	S1
Stator variant	1
Module	125
Motor issue	14
Locked rotor code	D
Starts / hour	15
Power factor 1/1 Load	0.75
Power factor 3/4 Load	0.72
Power factor 1/2 Load	0.62
Pump Efficiency 1/1 Load	91.5 %
Pump Efficiency 3/4 Load	92.0 %
Pump Efficiency 1/2 Load	91.0 %

Section 13
Provision of Required Storage and Drainage Alternatives





Christopher B. Burke Engineering, Ltd. 9575 West Higgins Road, Suite 600 Rosemont, IL 60018 (847) 823-0500 / FAX (847) 823-0520	CLIENT: Illinois Department of Transportation	JOB#: 11-0203.00001	DSGN.: DEV / CHKD.:	
	TITLE: XP-SWMM Schematic		DATE: 08-06-13	EXHIBIT 13-1

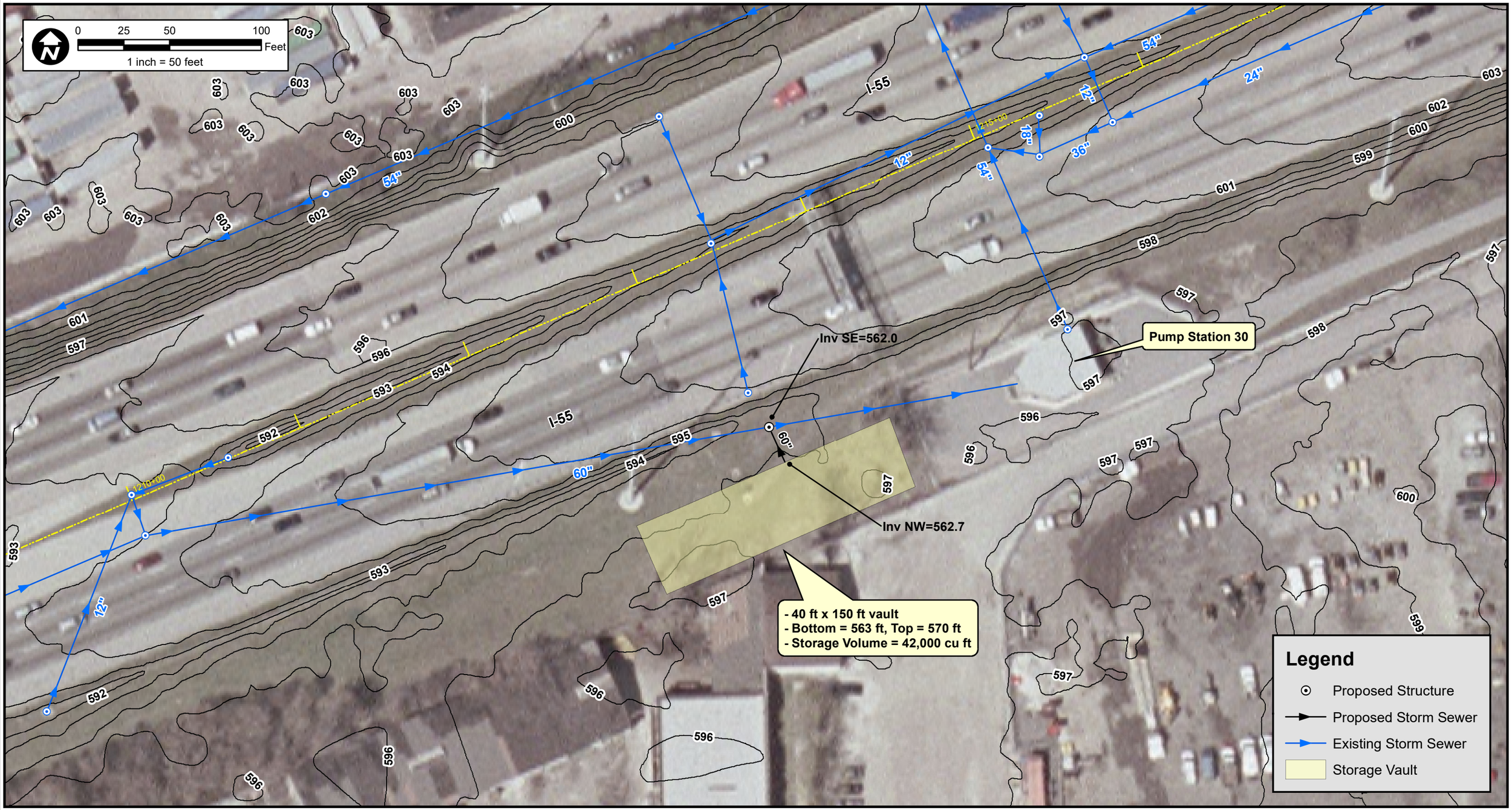


N:\ldot\110203.00001\GIS\Exhibits\PS30\For Report Section 13_October 2016\EXH 13-2_ALT A_84 inch Parallel Trunk in median.mxd

DSGN.	DEV	CHKD.	

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT: Illinois Department of Transportation	PROJECT NO.: 11-0203	
TITLE: FINALIST ALTERNATIVE A	DATE: 10/13/16	
	EXHIBIT 13-2	



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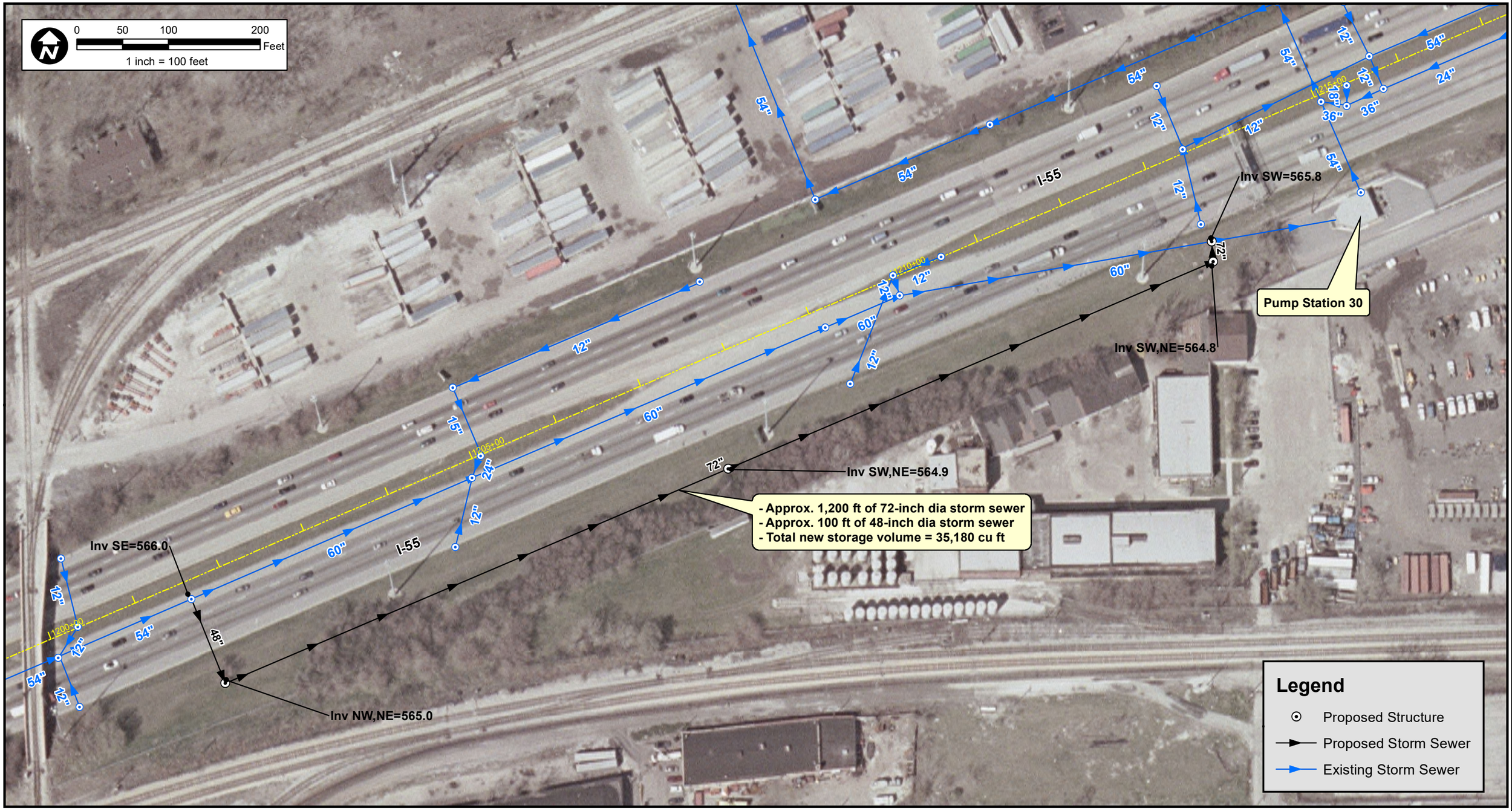
DSGN.	DEV	CHKD.	

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT: Illinois Department of Transportation	PROJECT NO.: 11-0203	
TITLE: FINALIST ALTERNATIVE B	DATE: 09/20/16	
	EXHIBIT 13-3	



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DSGN.	EMB	CHKD.	

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT: Illinois Department of Transportation	PROJECT NO.: 11-0203	08/20/19
TITLE: FINALIST ALTERNATIVE C		DATE: EXHIBIT 13-4

PROJECT 110203; PUMP STATION 30

Estimated Conceptual Cost of Finalist Alternative A - 1,013 lft of 84" RCP SS in median

August 19, 2019

DESCRIPTION - open cut	UNIT	QUANTITY	UNIT PRICE	COST
OPEN CUT 84" STORM SEWER. Includes trench box	FOOT	1,013	$ 700.00	$709,100
TRENCH BACKFILL	FOOT	1,013	$ 350.00	$354,550
DROP SHAFT MANHOLE (17'-30'). Includes complete connections to proposed storm sewer	EACH	6	$ 10,000.00	$60,000
CONTAMINATED SOIL HAUL OFF	FOOT	1,013	$ 550.00	$557,150
DEWATERING	FOOT	1,013	$ 100.00	$101,300
MAINTENANCE OF TRAFFIC	LSUM	1	$ 50,000.00	$50,000
		SUBTOTAL		$1,832,100
		25% CONTINGENCY		$458,025
		TOTAL		$2,290,125

DESCRIPTION - bored/tunneled	UNIT	QUANTITY	UNIT PRICE	COST
STORM SEWER 84" JACKED (includes cost for three boring shafts)	FOOT	1,013	$ 2,500.00	$2,532,500
DROP SHAFT MANHOLE (17'-30'). Includes complete connections to proposed storm sewer	EACH	6	$ 20,000.00	$120,000
CONTAMINATED SOIL HAUL OFF	LSUM	1	$ 55,000.00	$55,000
DEWATERING	FOOT	1,013	$ 100.00	$101,300
MAINTENANCE OF TRAFFIC	LSUM	1	$ 50,000.00	$50,000
		SUBTOTAL		$2,858,800
		25% CONTINGENCY		$714,700
		TOTAL		$3,573,500

COSTS DO NOT INCLUDE GEOTECHNICAL OR ENVIRONMENTAL STUDIES OR SPECIAL REMEDIATION FOR CONTAMINATED SOILS

NO GROUND RESTORATION, AS MEDIAN WILL BE PAVED.

PROJECT 110203; PUMP STATION 30

Estimated Conceptual Cost of Finalist Alternative C - 1200 lft of 72" RCP SS in S. ROW

August 19, 2019

DESCRIPTION - open cut	UNIT	QUANTITY	UNIT PRICE	COST
OPEN CUT 72" STORM SEWER. Includes trench box	FOOT	1,200	$ 650.00	$780,000
STORM SEWER 48" JACKED (includes cost for one boring shaft)	FOOT	100	$ 2,000.00	$200,000
DROP SHAFT MANHOLE (17'-30'). Includes complete connections to proposed storm sewer	EACH	5	$ 10,000.00	$50,000
CONTAMINATED SOIL HAUL OFF	FOOT	1,200	$ 550.00	$660,000
DEWATERING	FOOT	1,200	$ 100.00	$120,000
BACKFILL & TOPSOIL	CU FT	322,839	$ 1.75	$564,968
MAINTENANCE OF TRAFFIC	LSUM	1	$ 50,000.00	$50,000
		SUBTOTAL		$2,424,968
		25% CONTINGENCY		$606,242
		TOTAL		$3,031,210

DESCRIPTION - bored/tunneled	UNIT	QUANTITY	UNIT PRICE	COST
STORM SEWER 72" JACKED (includes cost for three boring shafts)	FOOT	1,200	$ 2,300.00	$2,760,000
STORM SEWER 48" JACKED (includes cost for one boring shaft)	FOOT	100	$ 2,000.00	$200,000
DROP SHAFT MANHOLE (17'-30'). Includes complete connections to proposed storm sewer	EACH	5	$ 20,000.00	$100,000
CONTAMINATED SOIL HAUL OFF	LSUM	1	$ 66,000.00	$66,000
DEWATERING	FOOT	1,200	$ 100.00	$120,000
MAINTENANCE OF TRAFFIC	LSUM	1	$ 50,000.00	$50,000
		SUBTOTAL		$3,296,000
		25% CONTINGENCY		$824,000
		TOTAL		$4,120,000

COSTS DO NOT INCLUDE GEOTECHNICAL OR ENVIRONMENTAL STUDIES OR SPECIAL REMEDIATION FOR CONTAMINATED SOILS

EROSION CONTROL & PERMANENT SEEDING NOT INCLUDED

PREVIOUS ADDITIONAL ALTERNATIVES - FOR REFERENCE ONLY

0 25 50 100 Feet

1 inch = 50 feet

Pump Station 30
- Upsize pumps to 15,750 gpm each (x4)
- 63,000 gpm total station capacity

Legend

Existing Storm Sewer

N:\Idot\110203.00001\GIS\Exhibits\PS30\For Report Section 13_October 2016\EXH 13-5_ALT 1_Upsize Pump Station Capacity.mxd

DSGN.	DEV	CHKD.	

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CLIENT	PROJECT NO.	
Illinois Department of Transportation	11-0203	
TITLE		**DATE** 09/20/16
ALTERNATIVE 1		EXHIBIT 13-5

0 100 200 400 Feet

1 inch = 200 feet

Relief storm sewer

Pump Station 30

I-55

ADLAI STEVENSON EXPY

ILLINOIS CENTRAL GULF R

ST LOUIS AVE

HOMAN AVE

Legend

Existing Storm Sewer

Proposed Storm Sewer

\\cbbelsrvr1\cbbeldft\ldot\110203.00001\GIS\Exhibits\PS30\For Report Section 13_October 2016\EXH 13-6_Relief Sewer.mxd

DSGN.	DEV	CHKD.	

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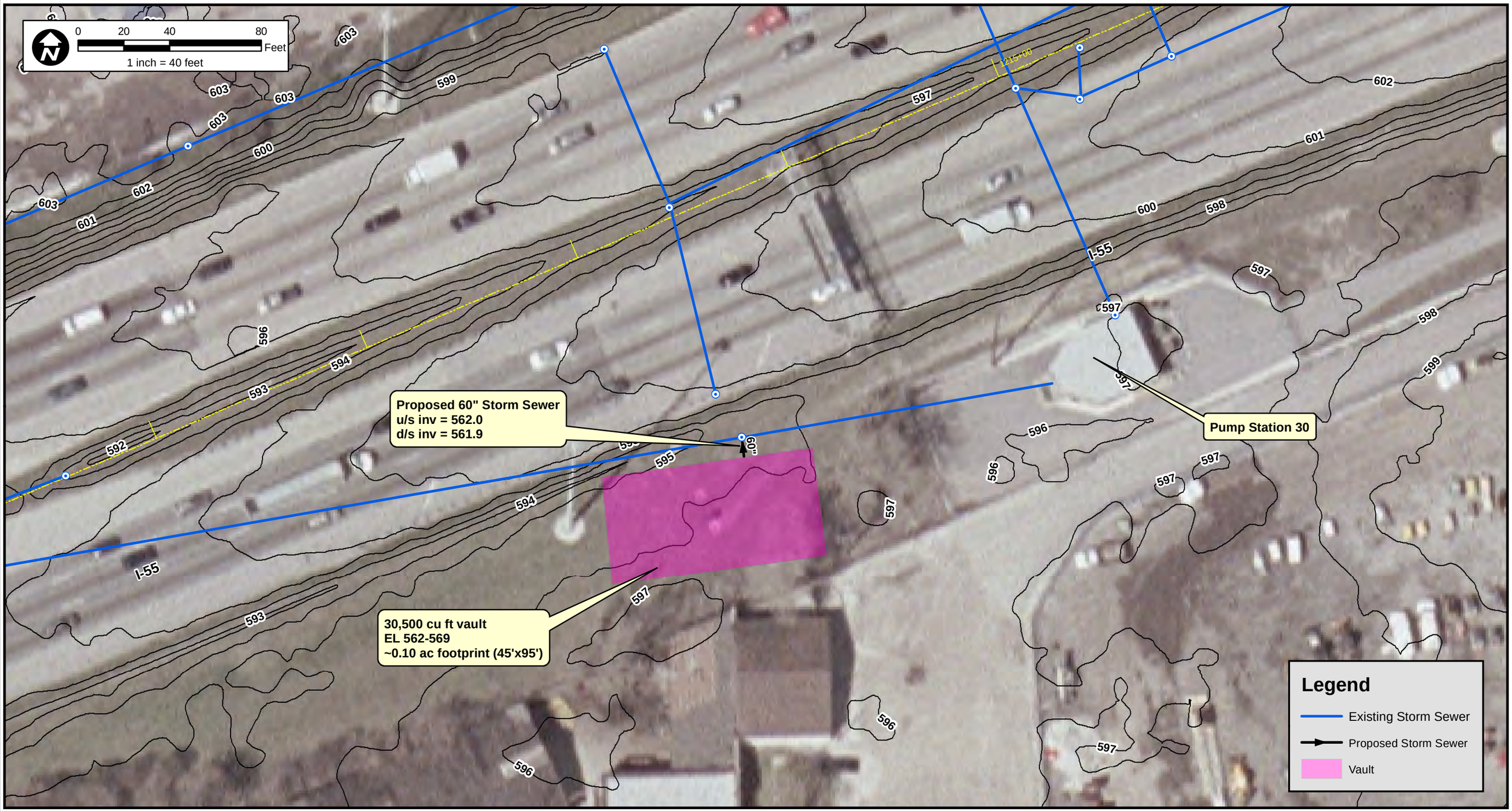
9575 West Higgins Road, Suite 600
Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT Illinois Department of Transportation	**PROJECT NO.** 11-0203	
TITLE ALTERNATIVE 2		**DATE** 09/20/16
		EXHIBIT 13-6



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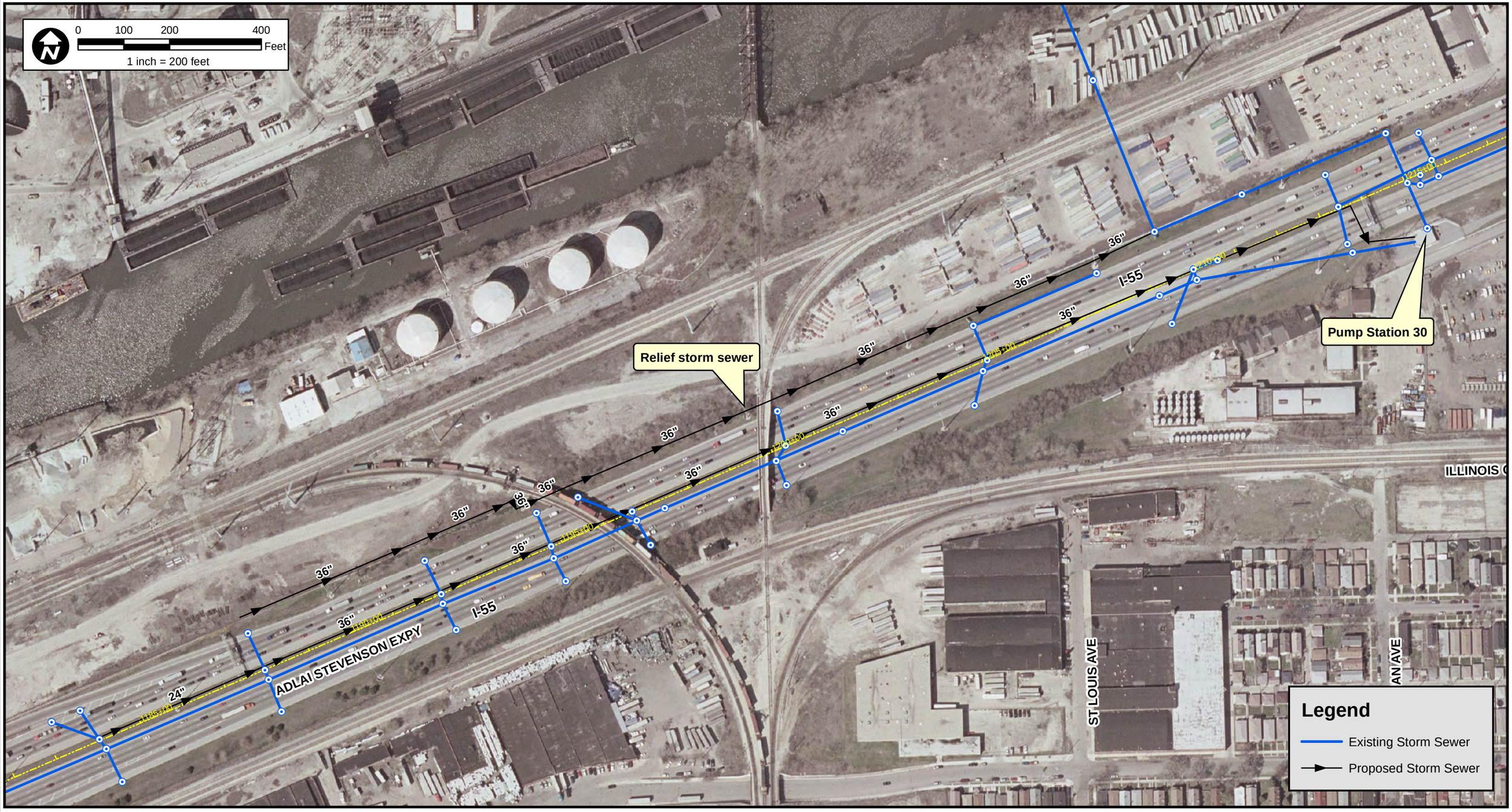
DSGN.	DEV	CHKD.	

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT: Illinois Department of Transportation		PROJECT NO.: 11-0203	
TITLE: ALTERNATIVE 3			DATE: 09/20/16
			EXHIBIT 13-7



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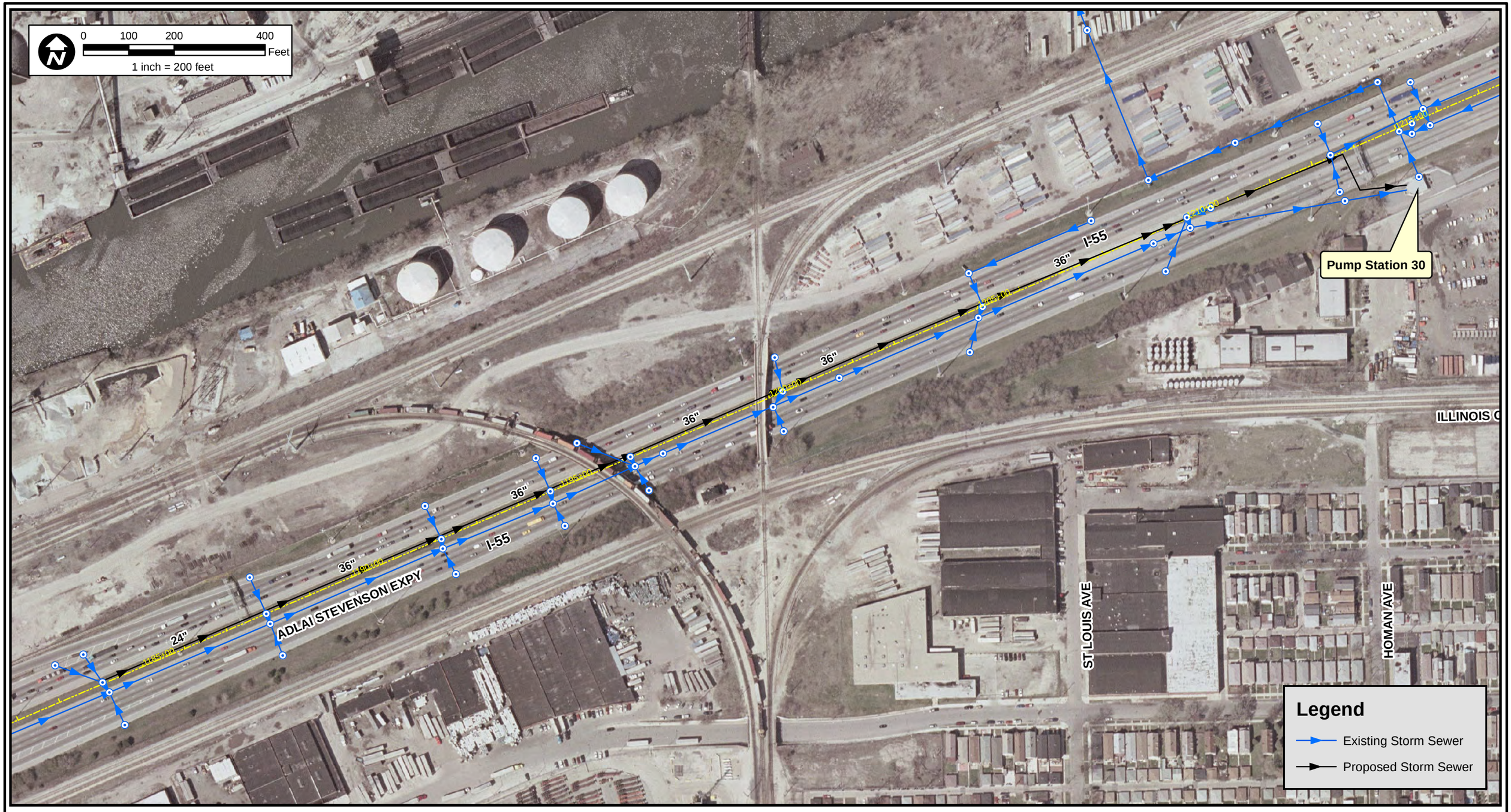
DSGN.	DEV	CHKD.	

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT: Illinois Department of Transportation	PROJECT NO.: 11-0203	
TITLE: ALTERNATIVE 4	DATE: 09/20/16	
	EXHIBIT 13-8	



\\cbbelsrvr1\cbbeldft\ldot\110203.00001\GIS\Exhibits\PS30\For Report Section 13_October 2016\EXH 13-9_36 inch Parallel Trunk in median_091316.mxd

DSGN.	DEV	CHKD.	

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Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT: Illinois Department of Transportation	PROJECT NO.: 11-0203		
TITLE: ALTERNATIVE 5		DATE: 09/20/16	
		EXHIBIT 13-9	

N:\Idot\110203.00001\GIS\Exhibits\PS30\For Report Section 13_October 2016\EXH 13-10_Parallel Trunk in median+vault.mxd

DSGN. DEV CHKD.

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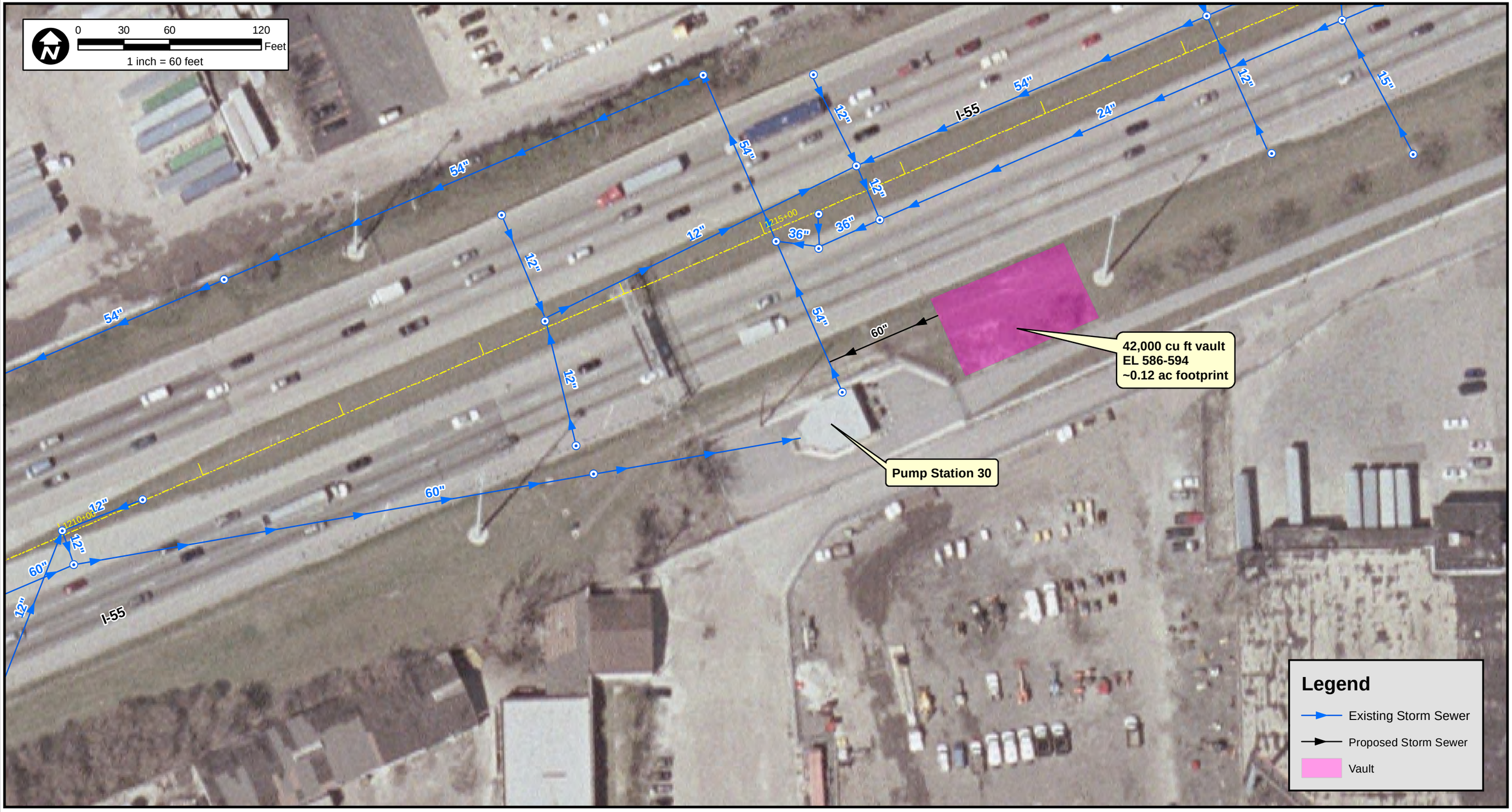
CLIENT
Illinois Department of Transportation

PROJECT NO.
11-0203

TITLE
ALTERNATIVE 6

DATE 09/20/16

EXHIBIT 13-10



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DSGN.	DEV	CHKD.	

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Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT: Illinois Department of Transportation	PROJECT NO.: 11-0203		
TITLE: ALTERNATIVE 7		DATE: 09/20/16	
		EXHIBIT 13-11	

\\cbbelsrvr1\cbbeldft\ldot\110203.00001\GIS\Exhibits\PS30\For Report Section 13_October 2016\EXH 13-12_Downstream Parallel Sewer.mxd

DSGN.	DEV	CHKD.	

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Rosemont, IL 60018
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CLIENT: Illinois Department of Transportation	PROJECT NO.: 11-0203	
TITLE: ALTERNATIVE 8	DATE: 09/20/16	
	EXHIBIT 13-12	

- Approx. 950 ft of 48-inch dia storm sewer
- New storage volume = 12,000 cu ft

N:\Idot\110203.00001\GIS\Exhibits\PS30\For Report Section 13_October 2016\EXH 13-13_Shortened Parallel Trunk in median.mxd

DSGN.	DEV	CHKD.	

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Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT	Illinois Department of Transportation	PROJECT NO.	11-0203
TITLE	ALTERNATIVE 9	DATE	09/20/16
			EXHIBIT 13-13

0 62.5 125 250 Feet

1 inch = 122 feet

I-55

48"

48"

48"

Pump Station 30

ILLINOIS CENT

Legend

Existing Storm Sewer

Proposed Storm Sewer

N:\Idot\110203.00001\GIS\Exhibits\PS30\For Report Section 13_October 2016\EXH 13-14_Parallel Trunk in south ROW tied into shoulder drains.mxd

DSGN.	DEV	CHKD.	

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9575 West Higgins Road, Suite 600
Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT Illinois Department of Transportation

PROJECT NO. 11-0203

TITLE ALTERNATIVE 10

DATE 09/20/16

EXHIBIT 13-14

N:\Idot\110203.00001\GIS\Exhibits\PS30\For Report Section 13_October 2016\EXH 13-15_84 inch Parallel Trunk in south ROW_091316.mxd

DSGN.	DEV	CHKD.	

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CLIENT Illinois Department of Transportation

PROJECT NO. 11-0203

TITLE ALTERNATIVE 11

DATE 09/20/16

EXHIBIT 13-15

2017 PUMP UPGRADE ALTERNATIVES MEMO - FOR REFERENCE ONLY

I-55 PUMP STATION NO. 30
Pump Upgrade Alternatives
Rev. 01/10/17

2017 Pump Alt. Memo - For Reference Only. It was agreed that the existing pumping rate will be maintained.

1.0 EXISTING CONDITIONS

The Pump Station No. 30 was originally designed with 4 vertical turbine type pumps each rated at 10,000 gpm (22.3 cfs) for a total pumping capacity of 89 cfs with four pumps operating. Each pump discharged through a steel tube and flap gate into the discharge chamber. Improvements were designed in 1999 to remove the four existing turbine pumps and discharge tubes and replace them with 170 Hp submersible centrifugal type pumps and ductile iron discharge piping with elastomeric check valves. The rating of the current 170 Hp pumping units is shown on the plans to be 13,300 gpm each pump (29.6 cfs each pump) for a total pumping capacity with four pumps running of approximately 118.5 cfs. There is an existing 54" diameter RCP storm sewer that conveys storm water to the pump station.

2.0 PROPOSED CONDITIONS

From modeling the drainage system:
Maximum 50-year inflow to station = 125 cfs.
Maximum 100-year inflow to station = 152 cfs.

CBBEL reviewed the following two proposed conditions for pump upgrades. While not common practice, the 100-year event was conservatively considered as the controlling case for upsizing the pumps because, as discussed in the Hydraulic Report narrative Section 3.3.1, "The existing pump station and main drain system meets freeboard requirements for the 50-year critical duration storm event, but does not meet freeboard requirements for the 100-year critical duration storm event".

***Please Note**: Pump Alternatives No. 1 and 2 apply only to the pump station and do not correlate with the numbered Drainage Alternatives discussed elsewhere in the report.*

Pump Alternative No. 1: Four pumps each rated at 17,000 gpm (38 cfs) for a total pumping capacity of 152 cfs with four pumps operating.

Pump Alternative No. 2: Three pumps each rated at 51 cfs with a standby pump rated at 51 cfs (4 pumps each rated at approximately 23,000 gpm) for a total pumping capacity of approximately 153 cfs with three pumps operating.

2.1 PUMP ALTERNATIVE NO. 1

Pump Alternative No. 1 consists of the removal of the four existing 170 Hp submersible centrifugal pumps and ductile iron discharge piping and replacing with four 170 Hp submersible axial flow propeller pumps each mounted in a steel discharge tube approximately 32" diameter. The painted steel discharge tube would be installed within the existing floor openings and be supported from the bottom floor slab. The submersible axial flow pump sits inside the steel tube and is removed out the top through an opening in the roof (and associated roof hatch) and a crane. See attached exhibit of a proposed axial flow pump and discharge tube. The proposed pumps would be similar to Flygt Model 7061/706 with 170 Hp motors each rated at approximately 17,000 gpm (38 cfs). See attached catalog information of the proposed Flygt axial flow pumps.

The proposed pumps' motor horsepower (170 Hp) matches the existing centrifugal pumps to be removed thus requiring minimal modifications to the existing electrical pump control gear. The proposed pumps are shown in the attached exhibits in plan and section view. The existing centerline to centerline pump spacing of approximately 7 ft. has been verified with the pump manufacturer as being adequate for the application. Estimated costs for this alternative are as shown in the following table:

Pump Alternative No. 1: Engineer's Preliminary Opinion of Probable Construction Cost

Item No.	Description of Work	Unit	Qty.	Unit Cost	Amount
1	Pumps	Each	4	$150,000	$600,000
2	Discharge Tubes	Each	4	$50,000	$200,000
3	Roof Hatches	Each	4	$25,000	$100,000
4	Demolition/Removal Existing Pumps & Piping	Each	4	$25,000	$100,000
	Contingency 10%				$100,000
				Total Pump Alternative No. 1	$1.1 million

2.2 PUMP ALTERNATIVE NO. 2

Pump Alternative No. 2 consists of providing the 100-year pumping capacity and including a standby pump, therefore, the 100-year maximum inflow rate was divided among three pumping units (instead of four) and the fourth pump would be considered a standby. For this alternative, each proposed pump is rated at approximately 23,000 gpm (51 cfs), and would be equipped with a 240 Hp submersible motor on the same Flygt Pump Model 7061/736 axial flow pump platform mounted in a painted steel discharge tube approximately 32 inches in diameter. The electrical service to the station would need to be upgraded for Pump Upgrade Alternative No. 2 to accommodate the higher horsepower motors resulting in modifications to the Motor Control Center. The existing centerline to centerline pump spacing of approximately 7 ft. has been verified with the pump manufacturer as being adequate for the application.

Pump Alternative No. 2: Engineer's Preliminary Opinion of Probable Construction Cost

Item No.	Description of Work	Unit	Qty.	Unit Cost	Amount
1	Pumps	Each	4	$160,000	$640,000
2	Discharge Tubes	Each	4	$50,000	$200,000
3	Roof Hatches	Each	4	$25,000	$100,000
4	Demolition/Removal Existing Pumps & Piping	Each	4	$25,000	$100,000
5	Electrical Modifications	L Sum	1	$300,000	$300,000
	Contingency 10%				$150,000
				Total Pump Alternative No. 2	$1.5 million

JPC/pjb

2016 Email - For Reference Only. Upsized pumps not selected.

Dave Vogel

From: Katrina Ballado
Sent: Tuesday, October 04, 2016 4:23 PM
To: Dave Vogel
Cc: John Caruso
Subject: IDOT Pump Station #30 - Pump Information
Attachments: Existing Pump Set Points_Submersible Pumps.pdf; Proposed Pump Set Points_Submersible Pumps.pdf; Pump Station No. 30.072016.pdf; D1P917620-sht-mech_1.pdf; D1P917620-sht-mech_2.pdf; 170Hp Column Pump-4 pumps operating.pdf; 240Hp Column Pump-3 pumps operating.pdf

Dave,

Attached are the following:

1) Pump station system head and manufacturer pump curves based on the existing pump set points:

   2nd Lag Pump on = 565.0 *(This corresponds to the Min TDH on the attached graph)*
   1st Lag Pump on = 564.0
   Lead Pump on = 563.0
   Pump off=558.50 *(This corresponds to the Max TDH on the attached graph)*

2) Pump station system head and manufacturer pump curves based on lowering the existing "pump on" points by 1 ft:

   2nd Lag Pump on = 564.0 *(This corresponds to the Min TDH on the attached graph)*
   1st Lag Pump on = 563.0
   Lead Pump on = 562.0
   Pump off=558.50 *(This corresponds to the Max TDH on the attached graph)*

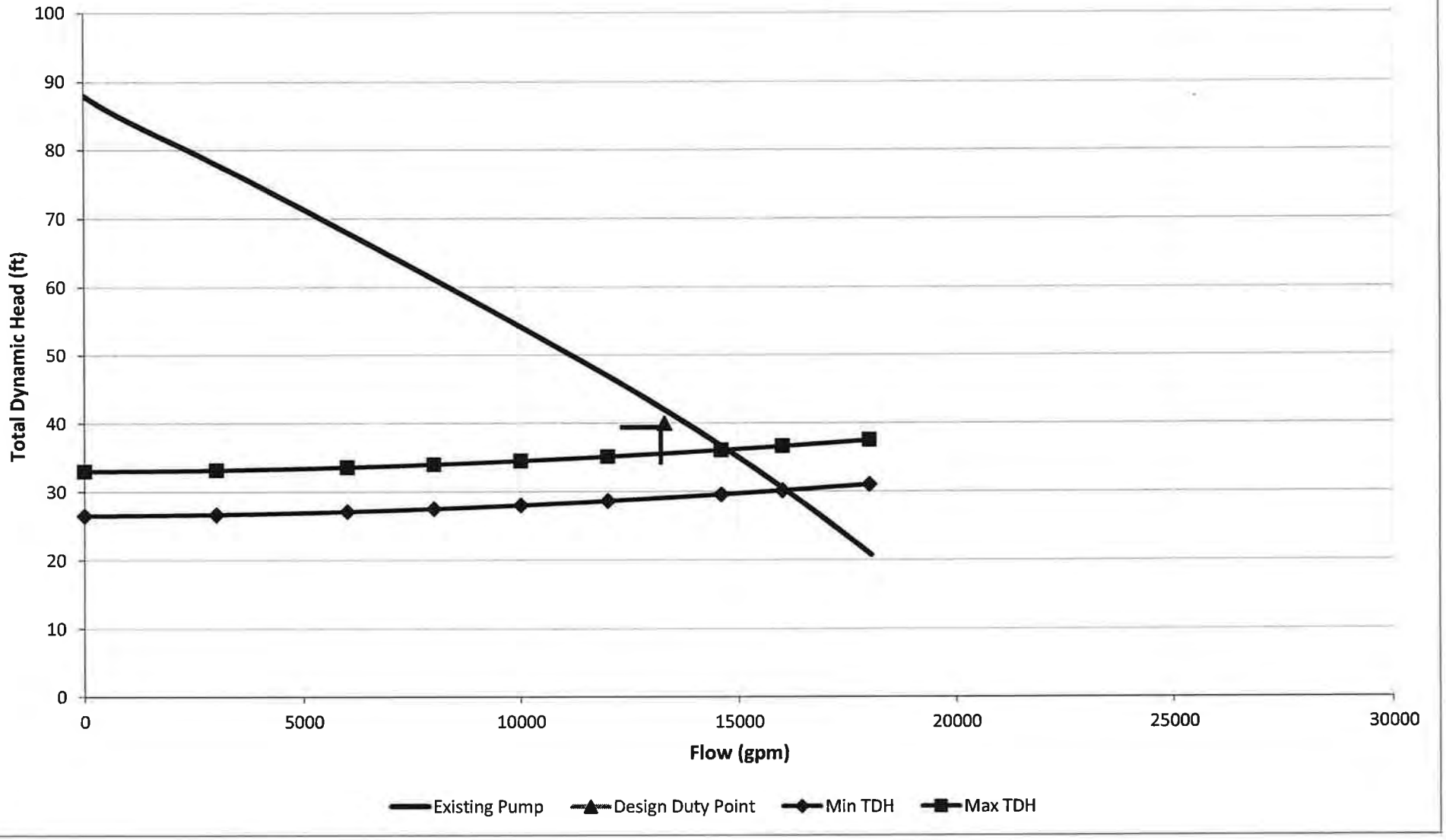
   I am not sure if this helps you minimize the amount of storage you will need to provide; however, this is the lowest we would recommend setting the pump "on" points to.

3) Pump Upgrade Alternatives Narrative
4) Plan and Section Exhibits (referenced in the Pump Upgrade Alternatives Narrative)
5) Pump catalog cuts for design Alternative No. 1 (referenced in the Pump Upgrade Alternatives Narrative)
6) Pump catalog cuts for design Alternative No. 2 (referenced in the Pump Upgrade Alternatives Narrative)

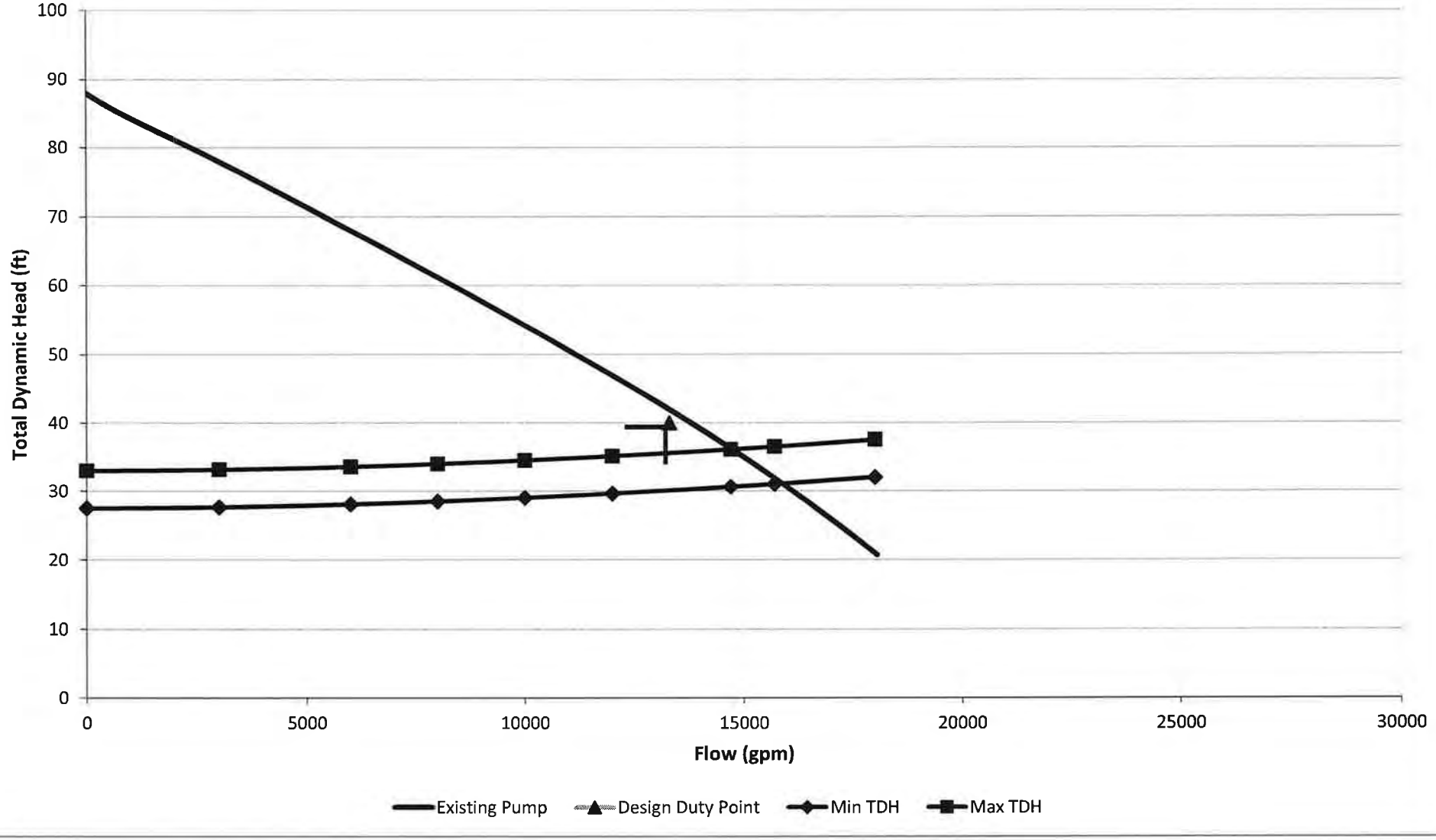
Let me know if you need anything else.
Thank you.

Katrina Ballado, PE, LEED AP
Mechanical Engineer
Christopher B. Burke Engineering, Ltd.
9575 W. Higgins Road, Suite 600 Rosemont, IL 60018
Phone: (847) 823-0500 Fax: (847) 939-5214
E-Mail: kballado@cbbel.com
www.cbbel.com

IDOT I-55 Pump Station #30
Main Pump System Head & Pump Curves
Existing Pump Set Points



IDOT I-55 Pump Station #30
Main Pump System Head & Pump Curves
Proposed Pump Set Points

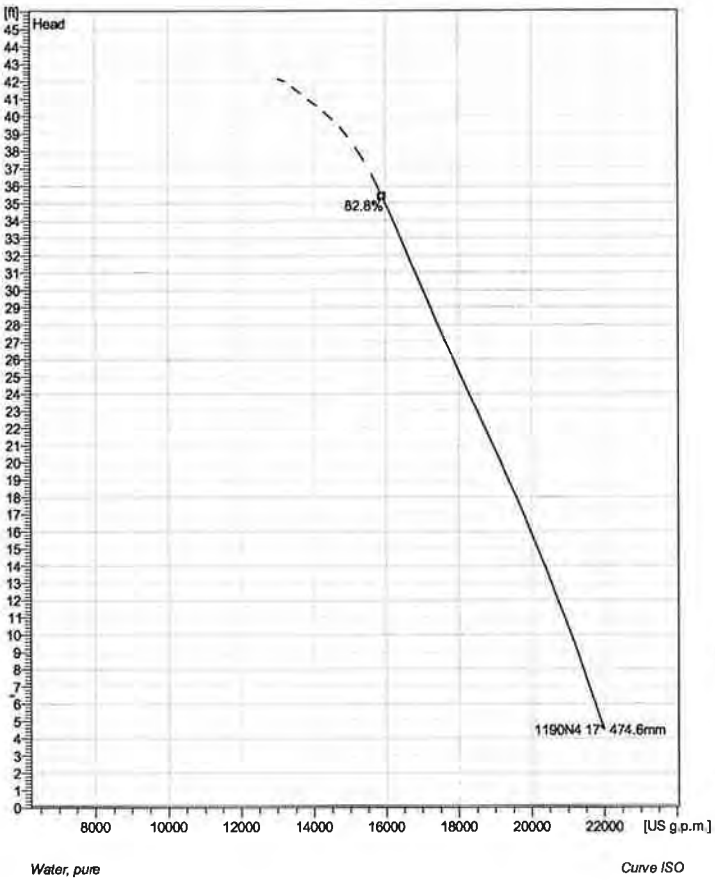


xylem

PL 7061/706 3~ 1190N4

Technical specification

FLYGT



Water, pure *Curve ISO*

Note: Picture might not correspond to the current configuration.

General
Axial flow propeller pumps with fixed or adjustable pitch blades for high capacity low head pumping of clean or slightly contaminated liquids. Cast iron design optimized for high-flow efficiency.

Impeller

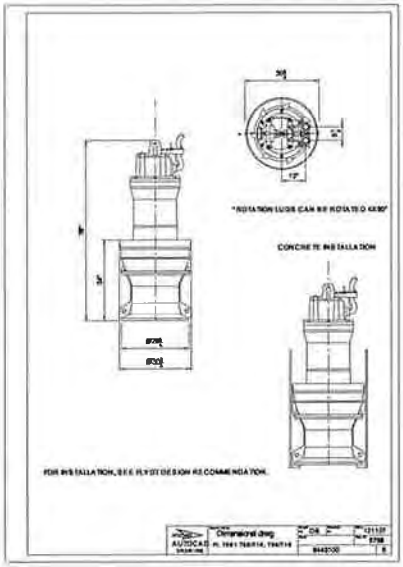
Impeller material	
Column diameter	31 1/2 Inch
Inlet diameter	
Impeller diameter	474.6 mm
Number of blades	4

Motor

Motor #	P0706.000 43-30-6ID-W 170hp
Approval	Standard
Stator variant	1
Frequency	60 Hz
Rated voltage	480 V
Number of poles	6
Phases	3~
Rated power	170 hp
Rated current	212 A
Starting current	1170 A
Rated speed	1185 rpm
Power factor	
1/1 Load	0.75
3/4 Load	0.68
1/2 Load	0.55
Motor efficiency	
1/1 Load	95.7 %
3/4 Load	96.2 %
1/2 Load	96.2 %

Configuration

Installation: L - Column pipe Semi permanent, Wet



Project	Project ID	Created by	Created on	Last update
			20.07.2016	

xylem

PL 7061/706 3~ 1190N4

FLYGT

Performance curve

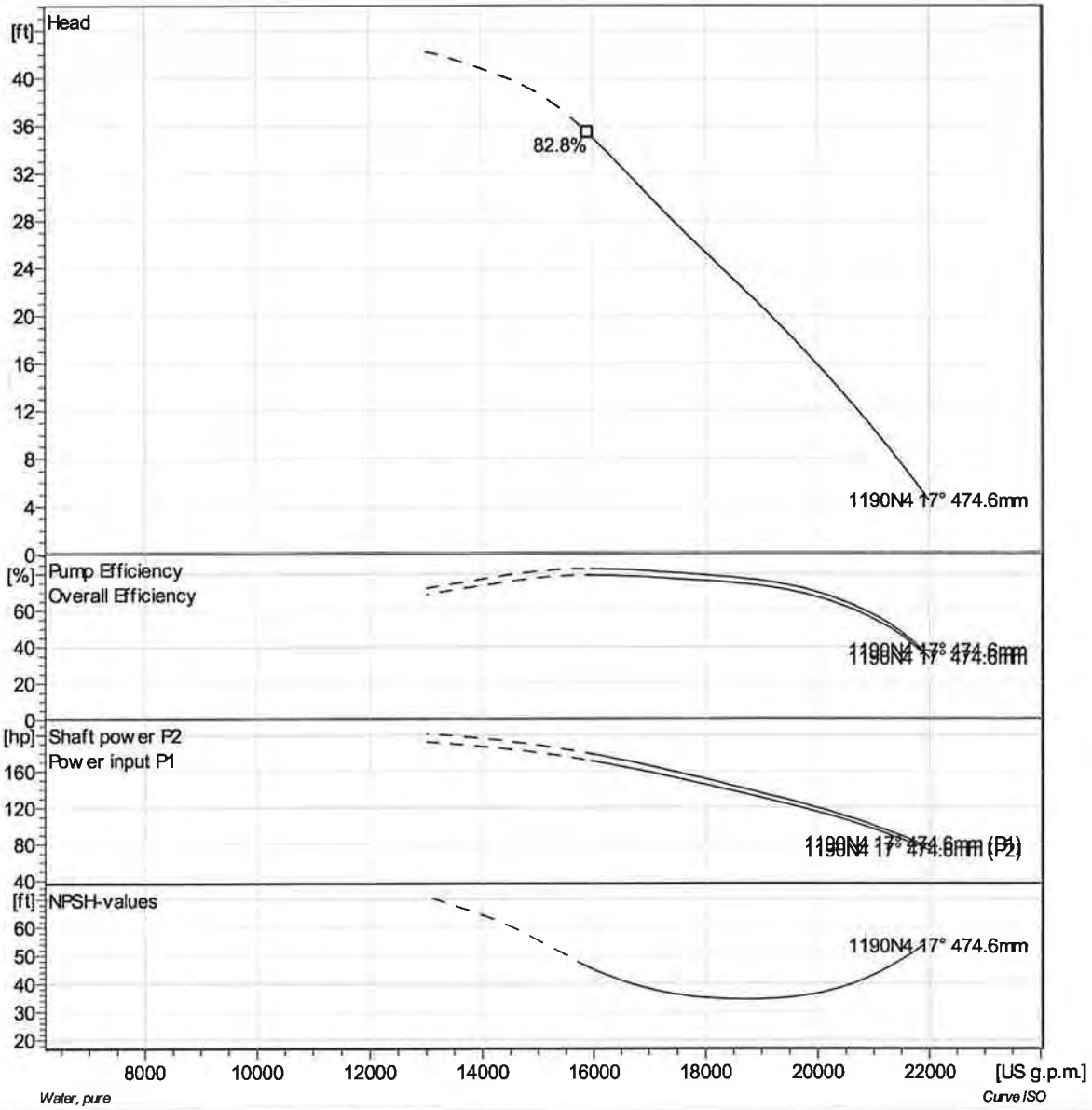
Pump

Column diameter	31 1/2 inch
Inlet diameter	
Impeller diameter	18 11/16"
Number of blades	4

Motor

Motor #	P0706.000 43-30-6ID-W 170hp
Approval	Standard
Stator variant	1
Frequency	60 Hz
Rated voltage	480 V
Number of poles	6
Phases	3~
Rated power	170 hp
Rated current	212 A
Starting current	1170 A
Rated speed	1185 rpm

Power factor	
1/1 Load	0.75
3/4 Load	0.68
1/2 Load	0.55
Motor efficiency	
1/1 Load	95.7 %
3/4 Load	96.2 %
1/2 Load	96.2 %



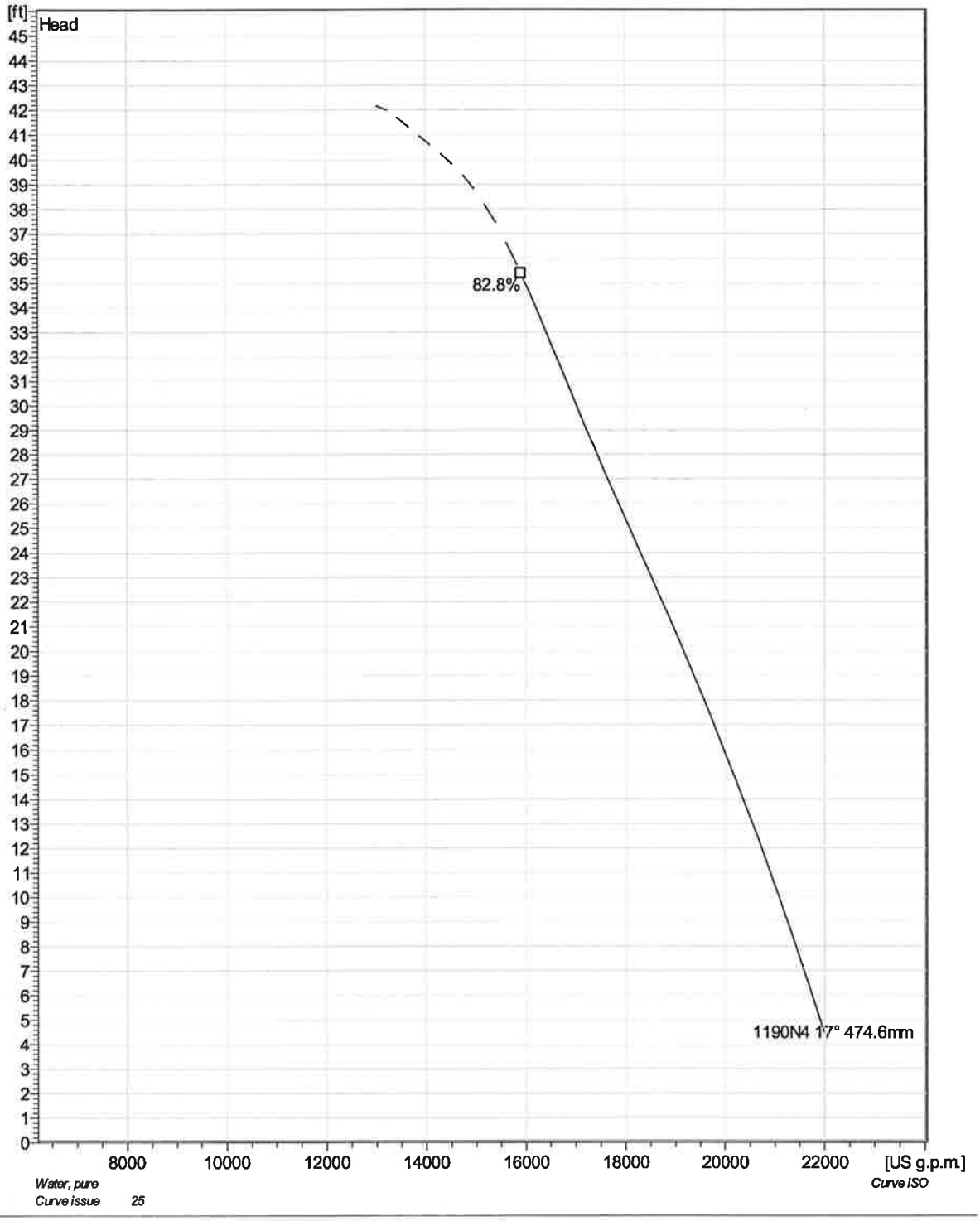
Project	Project ID	Created by	Created on	Last update
			20.07.2016	

xylem

PL 7061/706 3~ 1190N4

FLYGT

Duty Analysis



Project	Project ID	Created by	Created on	Last update
			20.07.2016	

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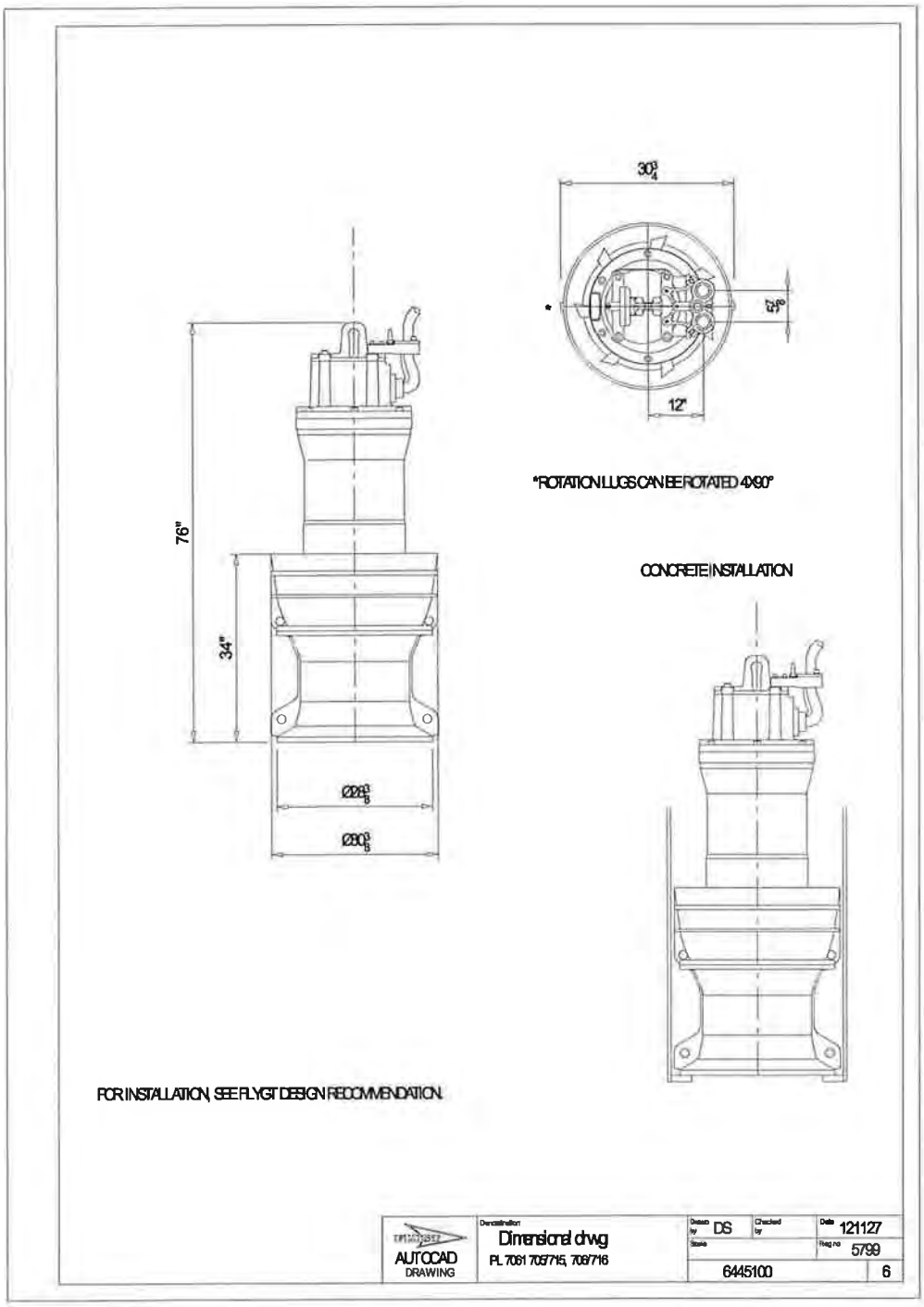
PL 7061/706 3~ 1190N4

Dimensional drawing

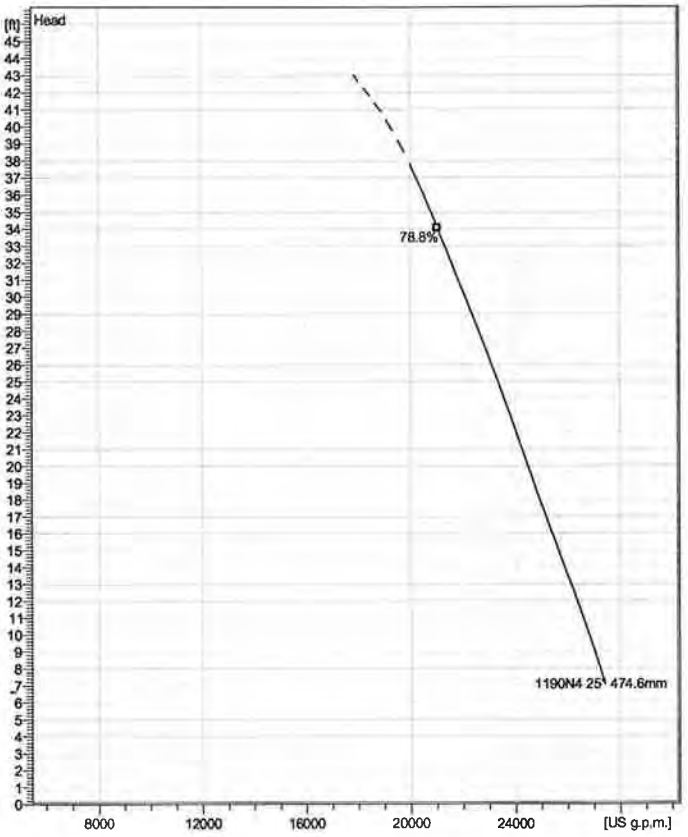
FLYGT



Project	Project ID	Created by	Created on	Last update
			20.07.2016	

PL 7061/736 3~ 1190N4

Technical specification



Water, pure *Curve ISO*

Note: Picture might not correspond to the current configuration.

General

Axial flow propeller pumps with fixed or adjustable pitch blades for high capacity low head pumping of clean or slightly contaminated liquids. Cast iron design optimized for high-flow efficiency.

Impeller

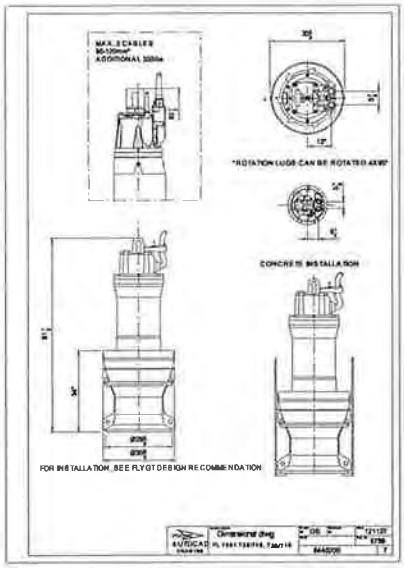
Impeller material	
Column diameter	31 1/2 inch
Inlet diameter	
Impeller diameter	474.6 mm
Number of blades	4

Motor

Motor #	P0736.000 43-44-6ID-W 240hp
Approval	Standard
Stator variant	1
Frequency	60 Hz
Rated voltage	480 V
Number of poles	6
Phases	3~
Rated power	240 hp
Rated current	280 A
Starting current	1620 A
Rated speed	1185 rpm
Power factor	
1/1 Load	0.81
3/4 Load	0.75
1/2 Load	0.64
Motor efficiency	
1/1 Load	95.5 %
3/4 Load	96.1 %
1/2 Load	96.4 %

Configuration

Installation: L - Column pipe Semi permanent, Wet



Project	Project ID	Created by	Created on	Last update
			20.07.2016	

xylem

PL 7061/736 3~ 1190N4

FLYGT

Performance curve

Pump

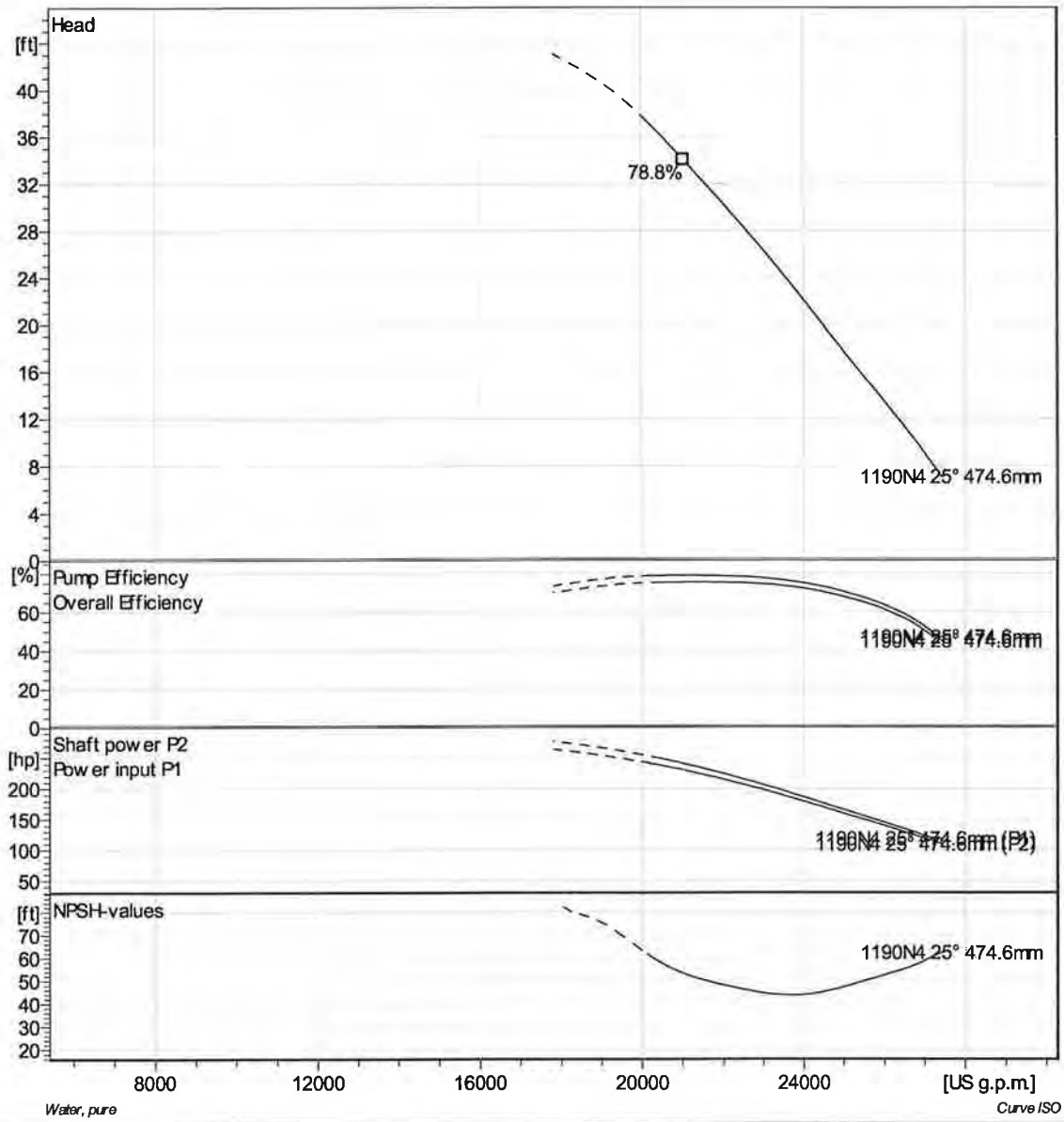
Column diameter	31 1/2 inch
Inlet diameter	
Impeller diameter	18 11/16"
Number of blades	4

Motor

Motor #	P0736.000 43-44-6ID-W 240hp
Approval	Standard
Stator variant	1
Frequency	60 Hz
Rated voltage	480 V
Number of poles	6
Phases	3~
Rated power	240 hp
Rated current	280 A
Starting current	1620 A
Rated speed	1185 rpm

Power factor	
1/1 Load	0.81
3/4 Load	0.75
1/2 Load	0.64

Motor efficiency	
1/1 Load	95.5 %
3/4 Load	96.1 %
1/2 Load	96.4 %



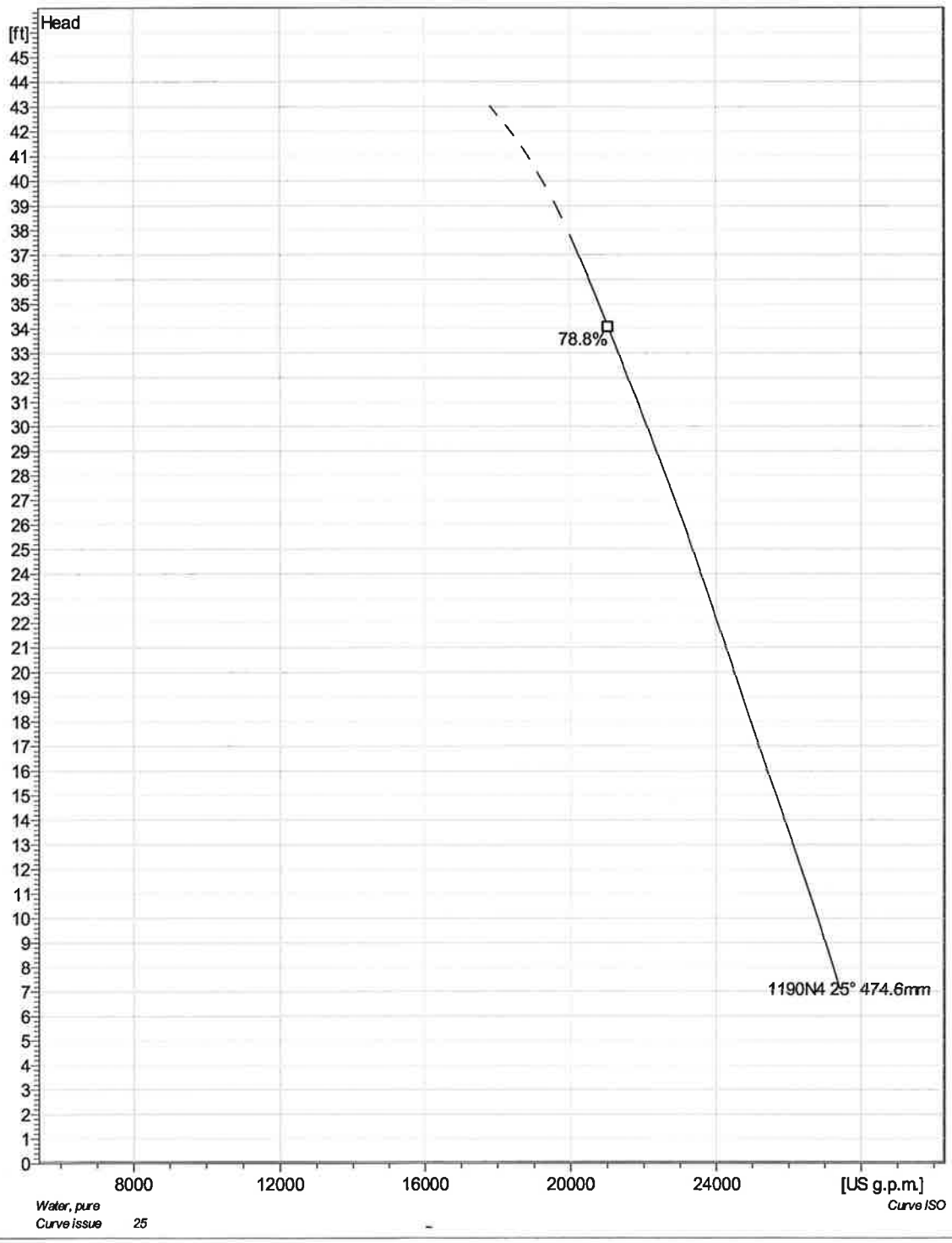
Project	Project ID	Created by	Created on	Last update
			20.07.2016	

xylem

PL 7061/736 3~ 1190N4

FLYGT

Duty Analysis



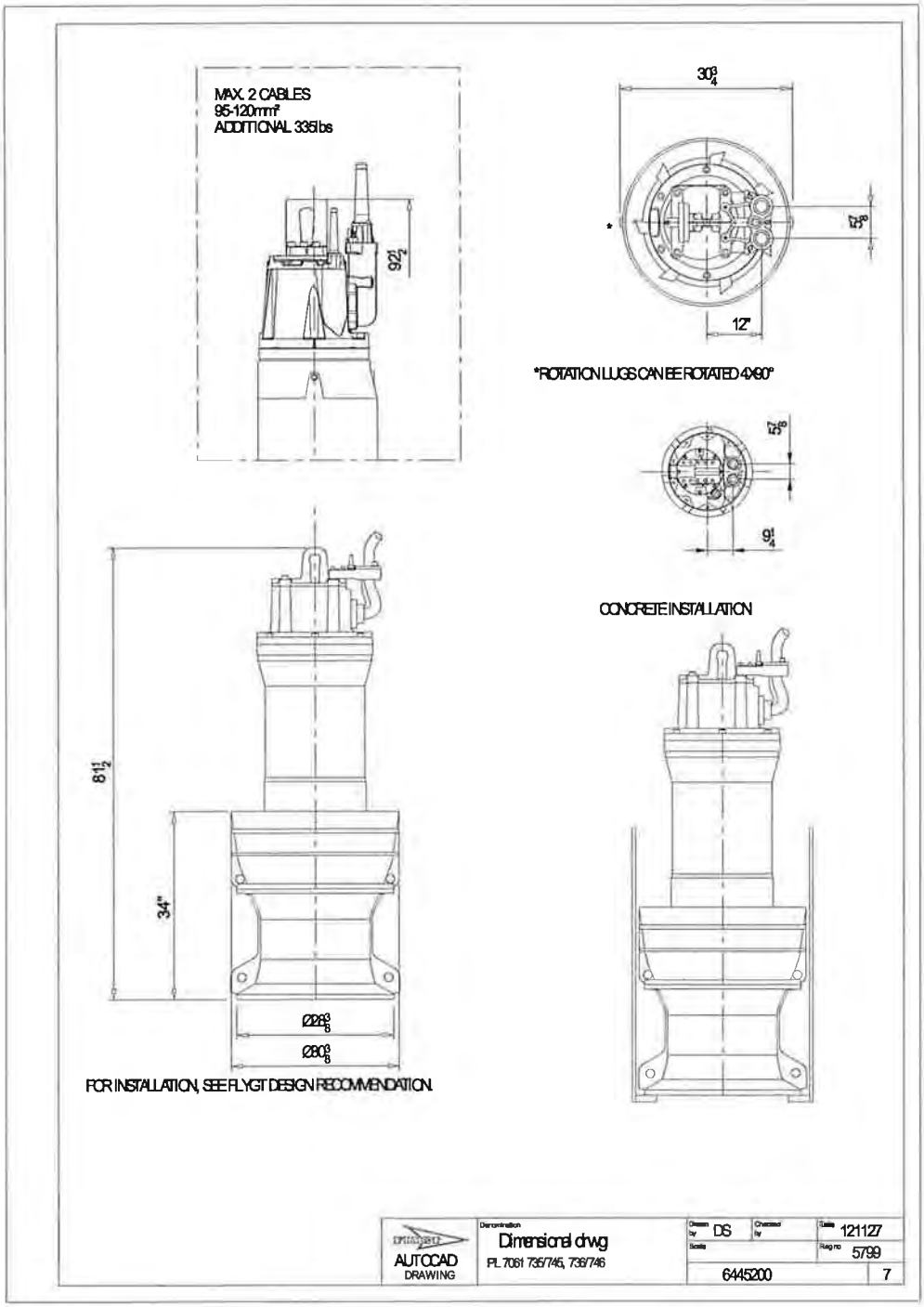
Project	Project ID	Created by	Created on	Last update
			20.07.2016	

xylem

PL 7061/736 3~ 1190N4

Dimensional drawing

FLYGT



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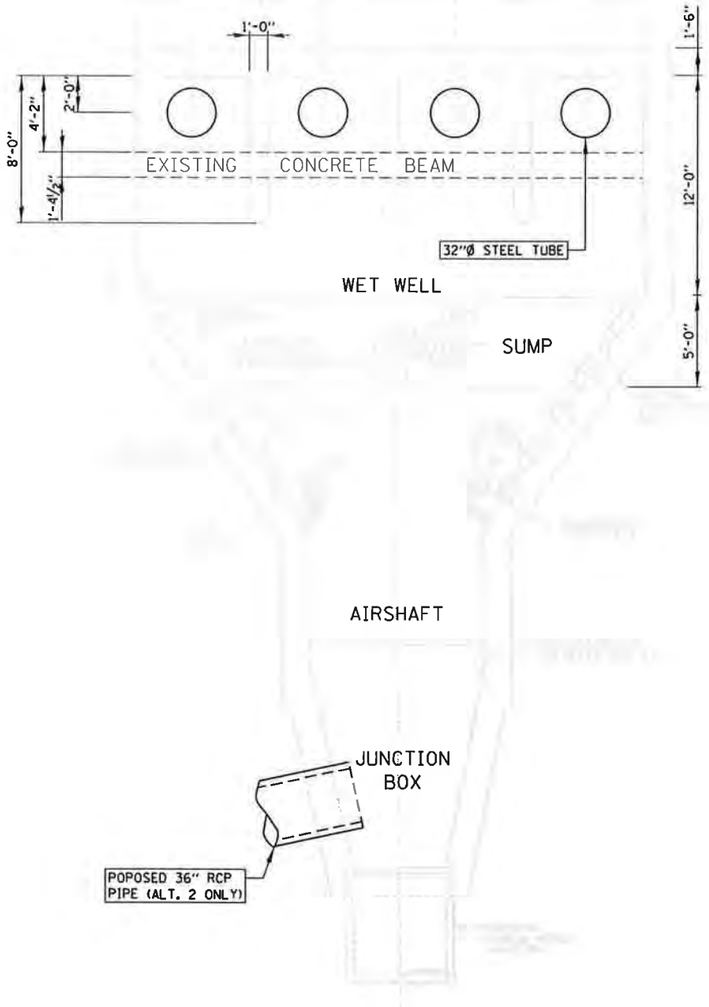
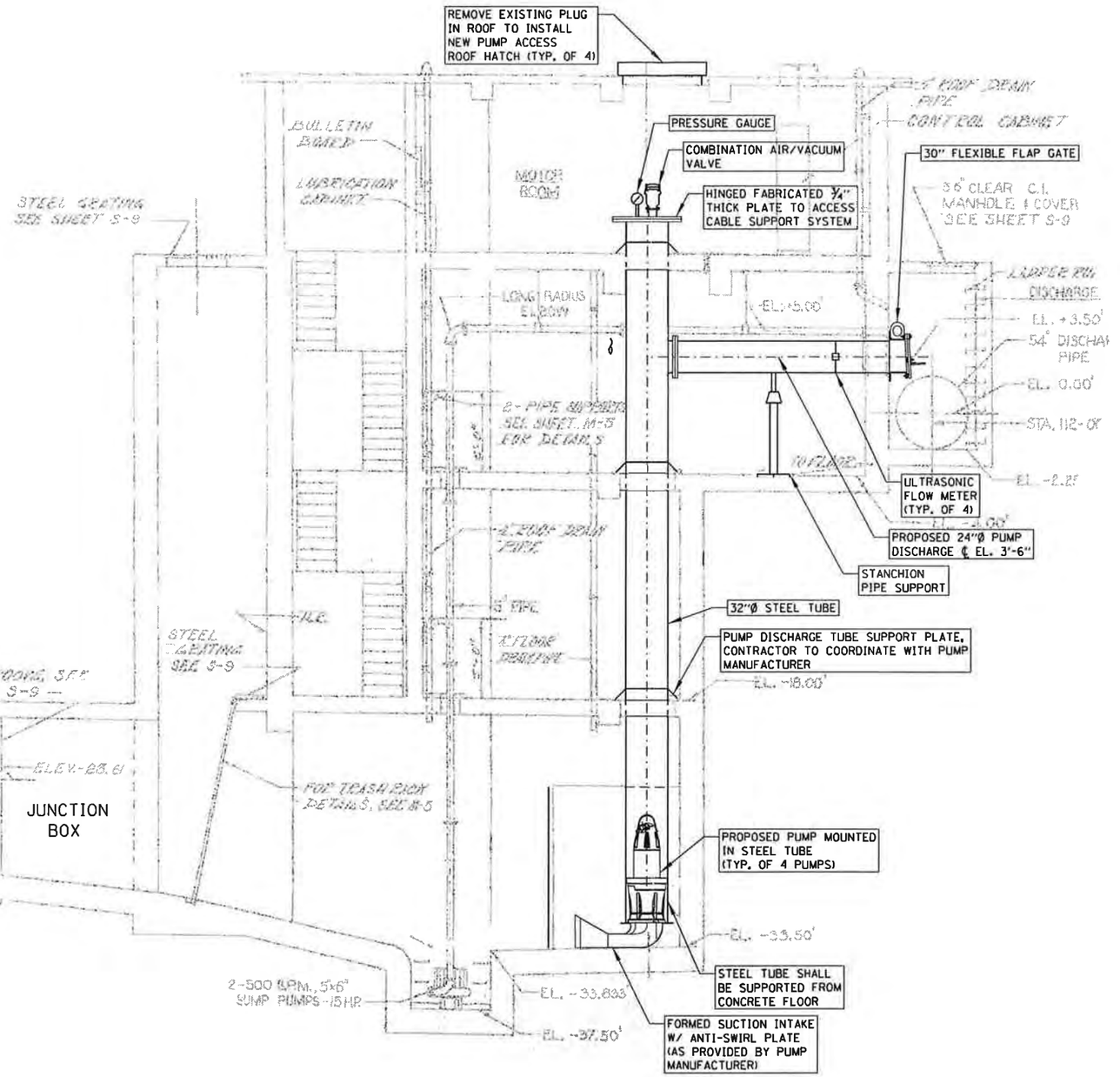
			20.07.2016	





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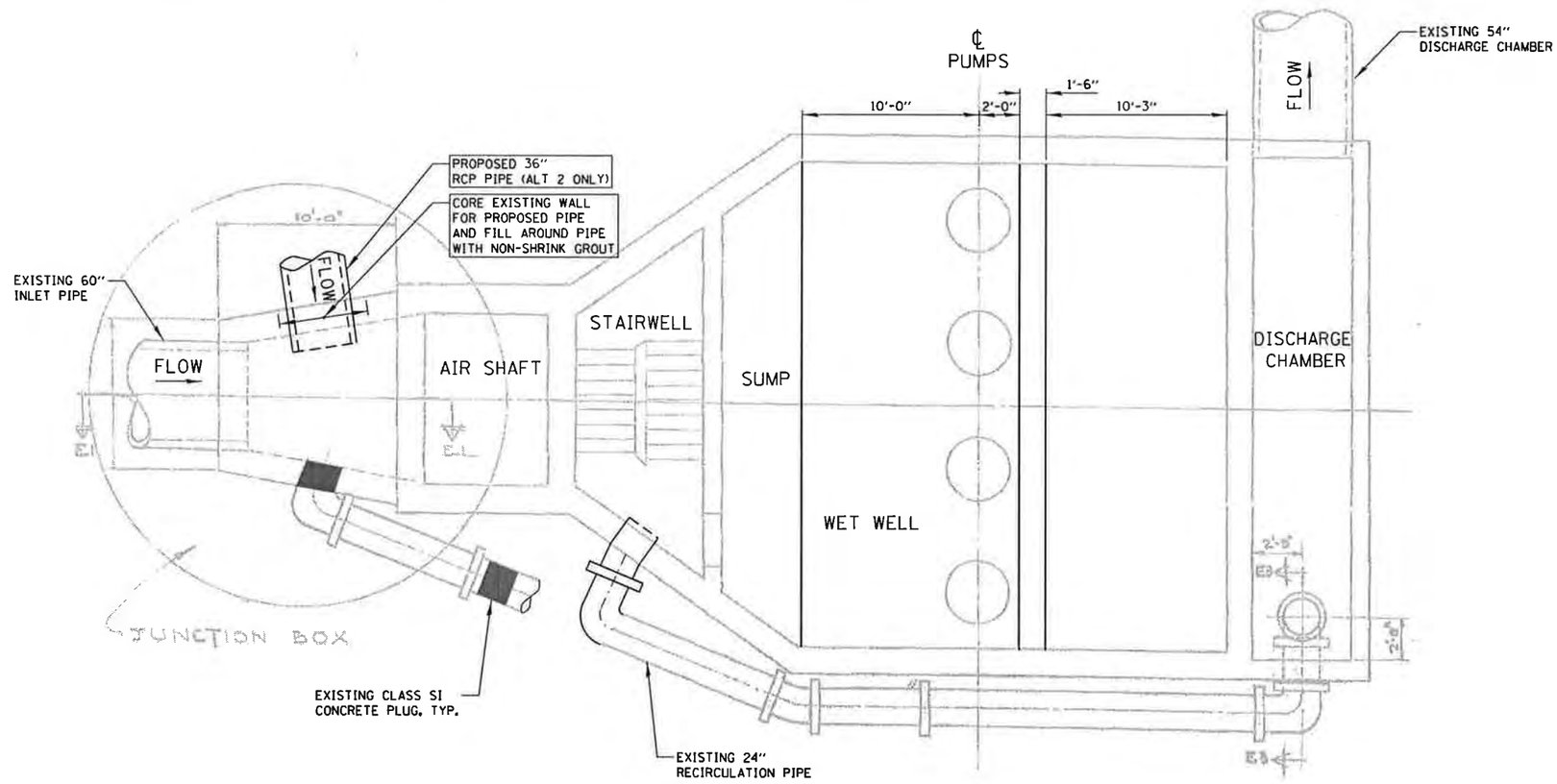
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PUMP STATION IMPROVEMENT EXHIBIT
(1 OF 2)

SCALE: 1/4" = 1'-0" | SHEET 1 OF 2 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			



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		DRAWN - ADB	REVISED -
	PLOT SCALE = N.T.S.	CHECKED - JPC	REVISED -
Default	PLOT DATE = 7/20/2016	DATE - 7/20/2016	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PUMP STATION IMPROVEMENT EXHIBIT
(2 OF 2)

SCALE: 1/4" = 1'-0" | SHEET 2 OF 2 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.

CONTRACT NO.

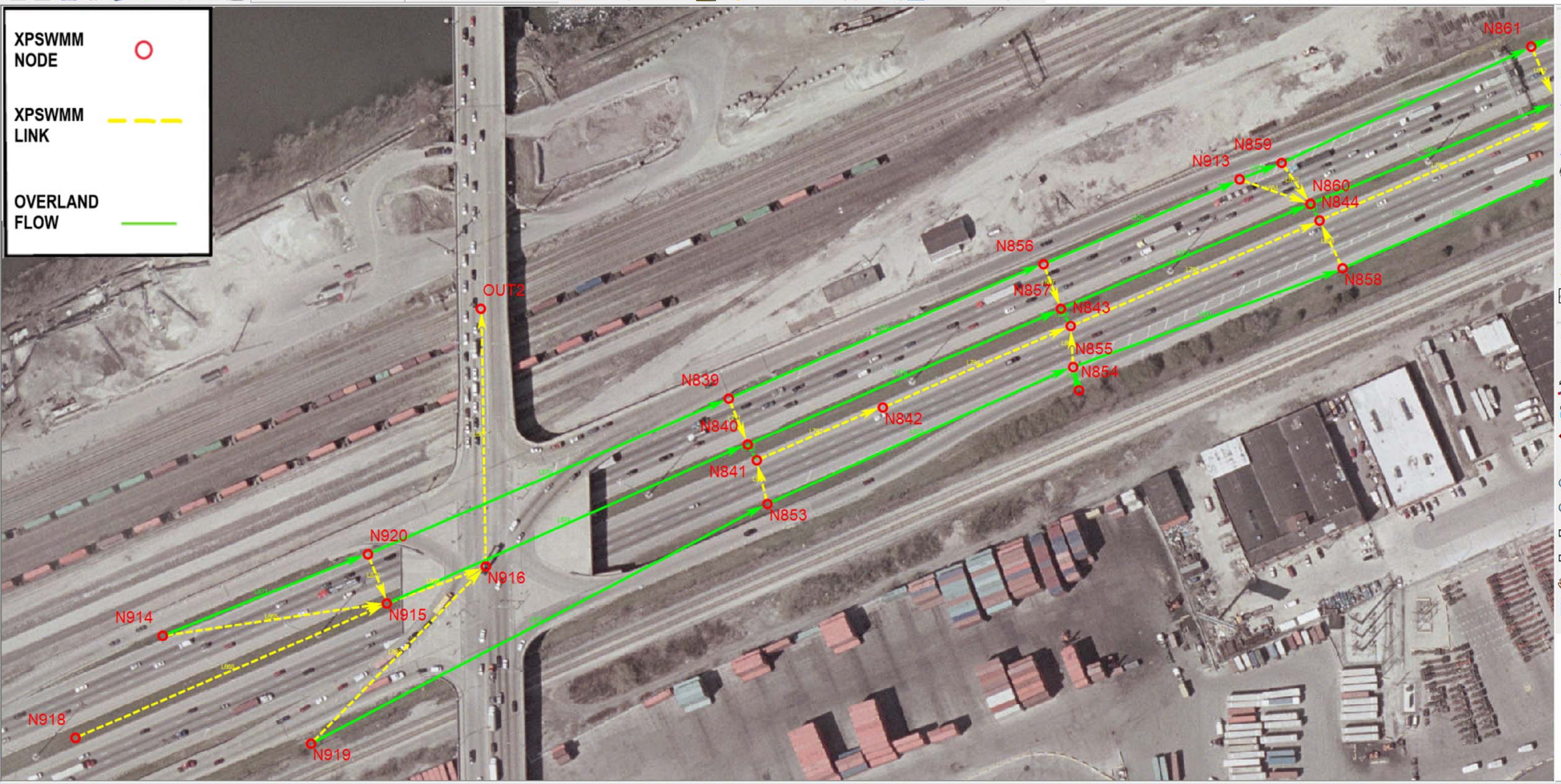
ILLINOIS | FED. AID PROJECT

Section 14
Hydraulic Gradient Calculations and Plots

xpswmm 2014 - [Existing FINAL 12_2021_v14.xp] [Network]

File Edit Project View Configuration Tools Analyze Results Window Help

Base Scenario ... 50-30min ... Rnf San Hdr



For Help, press F1 HDR 1:1387.768 OVR

xpswmm 2014 - [Existing FINAL 12_2021_v14.xp] [Network]

File Edit Project View Configuration Tools Analyze Results Window Help

Base Scenario ... 50-30min ... Rnf San Hdr

XPSWMM NODE

XPSWMM LINK

OVERLAND FLOW

N932 N876 N873 N877 N921 N851 N874 N922 N875 N850 N872 N908 N909 N849 N870 N871 N923 N911 N910 N848 N867 SAG N847 N924 N864 N865 N846 N869 N861 N866 N862 N845 N863

For Help, press F1

X=1151751.77 Y=1880340.59 HDR 1:1387.768 OVR

xpswmm 2014 - [Existing FINAL 12_2021_v14.xp] [Network]

File Edit Project View Configuration Tools Analyze Results Window Help

Base Scenario | 50-30min | Rnf San Hdr

XPSWMM NODE

XPSWMM LINK

OVERLAND FLOW

OUT1 N934 N932 N873 N874 N875 N850 N872 N931 N898 N899 N904 N906 N907 N905 N903 N902 N876 N877 N921 N851 N922 N926 N879 N888 N889 N878 WET WELL N925 N893 N900 N894 N886 N896 N895 N933 N891 N892 N897 N928 N881 N882 N883 N901 N884 N890 N929

For Help, press F1 X=1154315.29 Y=1880823.65 HDR 1:1387.768 OVR

LINK DATA

EXISTING CONDITONS

Name	Storm	Diameter (Hei	Downstream I	Upstream Inve	Length	Upstream Cro	Downstream	Upstream Nod	Downstream
L875	100-30min	1.000	588.610	592.800	500.000	593.800	N856	N839	589.610
n839 ss	100-30min	1.500	583.460	587.600	77.000	589.100	N840	N839	584.960
L876	100-30min	2.000	587.460	591.410	500.000	593.410	N857	N840	589.460
n840 ss	100-30min	1.500	583.010	583.210	24.000	584.710	N841	N840	584.510
n840 ol1	100-30min	1.000	593.210	591.410	24.000	592.410	N841	N840	594.210
n841 ss	100-30min	2.000	581.880	582.710	200.000	584.710	N842	N841	583.880
n842 ss	100-30min	3.000	580.610	581.130	298.000	584.130	N843	N842	583.610
n843 ss	100-30min	3.000	576.790	577.660	398.000	580.660	N844	N843	579.790
n844 ss	100-30min	3.000	573.340	573.940	386.000	576.940	N845	N844	576.340
n845 ss	100-30min	3.500	565.530	565.790	414.000	569.290	N846	N845	569.030
n846 ss	100-30min	4.000	564.270	565.330	260.000	569.330	N847	N846	568.270
n847 ss	100-30min	4.500	563.715	564.170	186.000	568.670	N910	N847	568.215
n848 ss	100-30min	4.500	563.320	563.520	266.000	568.020	N870	N848	567.820
n849 ss	100-30min	5.000	562.370	563.060	335.000	568.060	N850	N849	567.370
n850 ss	100-30min	5.000	562.112	562.370	422.000	567.370	N921	N850	567.112
n851 ss	100-30min	5.000	561.170	562.060	483.000	567.060	WET WELL	N851	566.170
Low Flow	100-30min						N878	WET WELL	
Lead	100-30min						N878	WET WELL	
Lag 1	100-30min						N878	WET WELL	
Lag 2	100-30min						N878	WET WELL	
Standby	100-30min						N878	WET WELL	
L877	100-30min	1.000	588.870	592.500	480.000	593.500	N855	N853	589.870
n853 ss	100-30min	1.500	583.010	584.440	65.000	585.940	N841	N853	584.510
n854 ss	100-30min	1.250	581.220	583.010	36.000	584.260	N855	N854	582.470
n854 ol1	100-30min	1.000	588.870	586.260	36.000	587.260	N855	N854	589.870
L880	100-30min	1.000	587.000	588.870	418.000	589.870	N858	N855	588.000
n855 ss	100-30min	1.250	578.260	579.470	61.000	580.720	N843	N855	579.510
L878	100-30min	1.000	586.320	588.610	312.000	589.610	N913	N856	587.320
n856 ss	100-30min	1.250	580.760	585.110	75.000	586.360	N857	N856	582.010
L879	100-30min	2.000	583.860	587.460	395.000	589.460	N860	N857	585.860
n857 ss	100-30min	1.500	579.010	579.410	23.000	580.910	N843	N857	580.510
n857 ol1	100-30min	1.000	589.160	587.460	23.000	588.460	N843	N857	590.160
L884	100-30min	1.000	585.940	587.000	380.000	588.000	N863	N858	586.940
n858 ss	100-30min	1.500	574.340	576.000	85.000	577.500	N844	N858	575.840
L882	100-30min	1.000	582.260	585.940	404.000	586.940	N861	N859	583.260
n859 ss	100-30min	1.000	578.260	578.440	76.000	579.440	N860	N859	579.260

LINK DATA

Name	Storm	Diameter (Hei	Downstream I	Upstream Inve	Length	Upstream Cro	Downstream	Upstream Nod	Downstream
L883	100-30min	2.000	581.420	583.860	390.000	585.860	N862	N860	583.420
n860 ss	100-30min	1.750	574.090	574.610	25.000	576.360	N844	N860	575.840
n860 ol1	100-30min	1.000	586.090	583.860	25.000	584.860	N844	N860	587.090
L885	100-30min	1.000	579.030	582.260	415.000	583.260	N864	N861	580.030
n861 ss	100-30min	1.250	575.370	578.060	88.000	579.310	N862	N861	576.620
L886	100-30min	2.000	578.520	581.420	420.000	583.420	N865	N862	580.520
n862 ss	100-30min	1.500	566.600	567.320	23.000	568.820	N845	N862	568.100
n862 ol1	100-30min	1.000	583.140	581.420	22.000	582.420	N845	N862	584.140
L887	100-30min	1.000	581.520	585.940	425.000	586.940	N866	N863	582.520
n863 ss	100-30min	1.250	567.000	568.950	75.000	570.200	N845	N863	568.250
L888	100-30min	1.000	577.310	579.030	264.000	580.030	N867	N864	578.310
n864 ss	100-30min	1.000	572.370	575.220	80.000	576.220	N865	N864	573.370
L889	100-30min	2.000	576.690	578.520	264.000	580.520	SAG	N865	578.690
n865 ss	100-30min	1.500	565.800	566.620	22.000	568.120	N846	N865	567.300
n865 ol1	100-30min	1.000	579.680	578.520	22.000	579.520	N846	N865	580.680
L890	100-30min	1.000	577.400	581.520	260.000	582.520	N869	N866	578.400
n866 ss	100-30min	1.500	565.430	567.420	69.000	568.920	N846	N866	566.930
n867 ss	100-30min	1.250	571.140	572.710	78.000	573.960	SAG	N867	572.390
867 weir	100-30min						SAG	N867	
n868 ss	100-30min	1.500	564.270	565.840	27.000	567.340	N847	SAG	565.770
n868 ol1	100-30min	1.000	578.270	576.690	26.000	577.690	N847	SAG	579.270
n869 ss	100-30min	1.500	564.270	566.420	64.000	567.920	N847	N869	565.770
n870 ss	100-30min	4.500	563.210	563.320	157.000	567.820	N849	N870	567.710
L904	100-30min	1.000	578.890	582.640	320.000	583.640	N924	N871	579.890
n871 ss	100-30min	1.000	563.900	576.130	330.000	577.130	N870	N871	564.900
L901	100-30min	1.000	582.640	587.790	450.000	588.790	N871	N872	583.640
n872 ss	100-30min	1.000	562.640	581.560	82.000	582.560	N850	N872	563.640
n873 ss	100-30min	1.000	583.010	587.040	296.000	588.040	N874	N873	584.010
n873 ol	100-30min	1.000	587.790	591.870	287.000	592.870	N874	N873	588.790
L899	100-30min	1.000	582.650	587.790	475.000	588.790	N908	N874	583.650
n874 ss	100-30min	1.250	579.210	582.980	71.000	584.230	N875	N874	580.460
L900	100-30min	3.000	580.620	585.210	477.000	588.210	N909	N875	583.620
n875 ss	100-30min	2.000	563.140	563.710	28.000	565.710	N850	N875	565.140
n875 ol1	100-30min	1.000	588.640	585.210	27.000	586.210	N850	N875	589.640
L894	100-30min	1.000	585.210	594.500	545.000	595.500	N875	N876	586.210
n876 ss	100-30min	1.000	590.370	592.060	57.000	593.060	N877	N876	591.370

LINK DATA

Name	Storm	Diameter (Hei	Downstream I	Upstream Inve	Length	Upstream Cro	Downstream	Upstream Nod	Downstream
n877 ss	100-30min	2.000	563.750	563.960	23.000	565.960	N851	N877	565.750
n878 ss	100-30min	4.500	585.150	585.470	123.000	589.970	N879	N878	589.650
n879ss2	100-30min	4.500	584.860	585.150	120.000	589.650	N931	N879	589.360
L933	100-30min	1.000	609.380	611.580	230.000	612.580	N928	N881	610.380
n881 ss	100-30min	1.000	606.530	606.480	87.000	607.480	N882	N881	607.530
n882 ss	100-30min	1.000	603.090	606.080	230.000	607.080	N883	N882	604.090
n882 ol	100-30min	3.000	608.510	610.780	230.000	613.780	N883	N882	611.510
n883 ol	100-30min	3.000	606.610	608.510	17.000	611.510	N901	N883	609.610
n901 ss2	100-30min	1.500	600.640	602.960	258.000	604.460	N892	N883	602.140
n885 ss	100-30min	2.000	588.210	590.190	390.000	592.190	N886	N884	590.210
n887 ss	100-30min	2.000	586.840	588.170	325.000	590.170	N888	N886	588.840
L915	100-30min	1.000	597.740	601.200	35.000	602.200	N926	N888	598.740
n888 ss	100-30min	3.000	586.610	586.840	38.000	589.840	N889	N888	589.610
n889 ss	100-30min	3.000	586.000	586.510	23.000	589.510	N879	N889	589.000
L934	100-30min	1.000	609.740	611.910	220.000	612.910	N929	N890	610.740
n890 ss	100-30min	1.000	605.980	606.860	88.000	607.860	N882	N890	606.980
n891 ss	100-30min	1.000	600.840	601.180	78.000	602.180	N892	N891	601.840
n891 weir	100-30min						N925	N891	
L924	100-30min	3.000	602.090	605.190	150.000	608.190	N900	N892	605.090
n892 ss2	100-30min	2.000	599.390	599.340	21.000	601.340	N933	N892	601.390
n893 ss	100-30min	1.000	589.180	598.500	78.000	599.500	N894	N893	590.180
L918	100-30min	2.000	597.740	602.680	280.000	604.680	N926	N894	599.740
n894 ss2	100-30min	4.500	586.920	587.380	246.000	591.880	N899	N894	591.420
n895 ss	100-30min	1.250	589.510	589.940	96.000	591.190	N886	N895	590.760
n896 ss	100-30min	1.000	589.910	598.640	87.000	599.640	N894	N896	590.910
N896 weir	100-30min						N895	N896	
n897 ss	100-30min	1.000	600.590	601.690	84.000	602.690	N892	N897	601.590
N897 weir	100-30min						N895	N897	
n898 ss	100-30min	1.000	590.720	595.400	75.000	596.400	N899	N898	591.720
n898 weir	100-30min						N925	N898	
L914	100-30min	1.000	597.740	601.160	40.000	602.160	N926	N899	598.740
n899 ss	100-30min	4.500	586.880	586.910	28.000	591.410	N888	N899	591.380
L923	100-30min	3.000	597.740	602.090	372.000	605.090	N926	N900	600.740
n900 ss	100-30min	1.500	589.460	589.380	23.000	590.880	N886	N900	590.960
L926	100-30min	3.000	605.440	606.610	242.000	609.610	N892	N901	608.440
n901 ss	100-30min	2.000	590.620	590.510	28.000	592.510	N884	N901	592.620

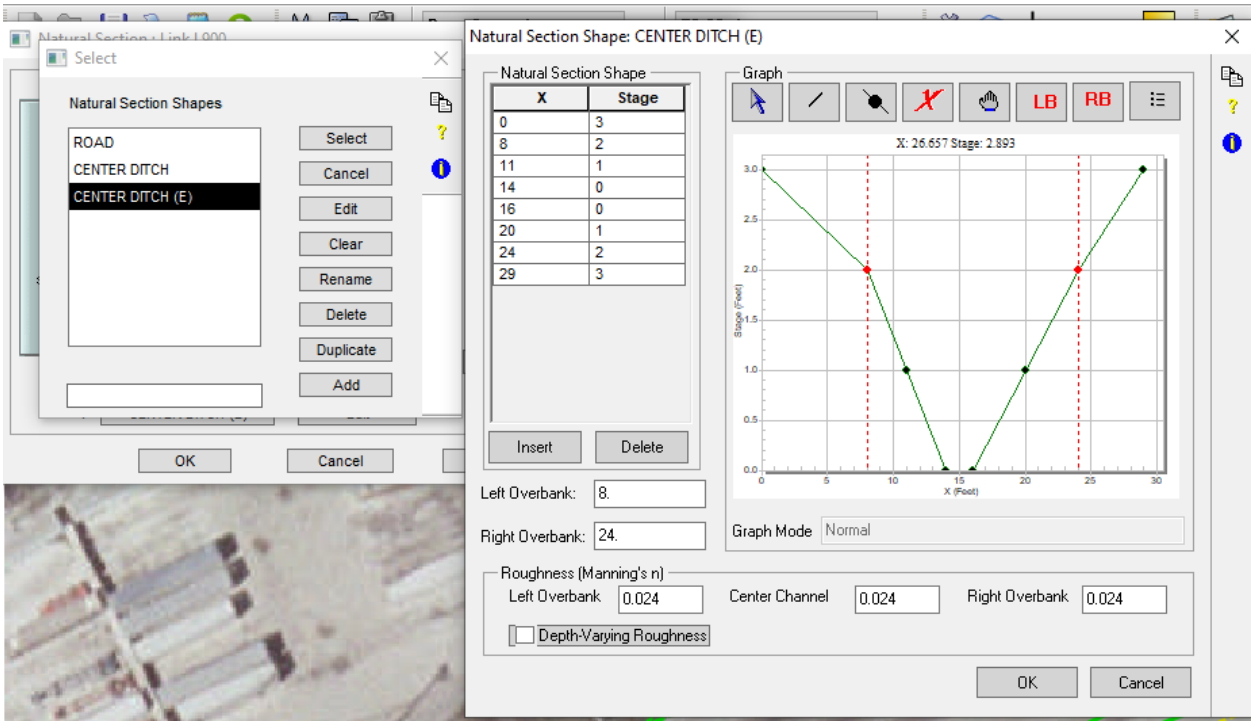
LINK DATA

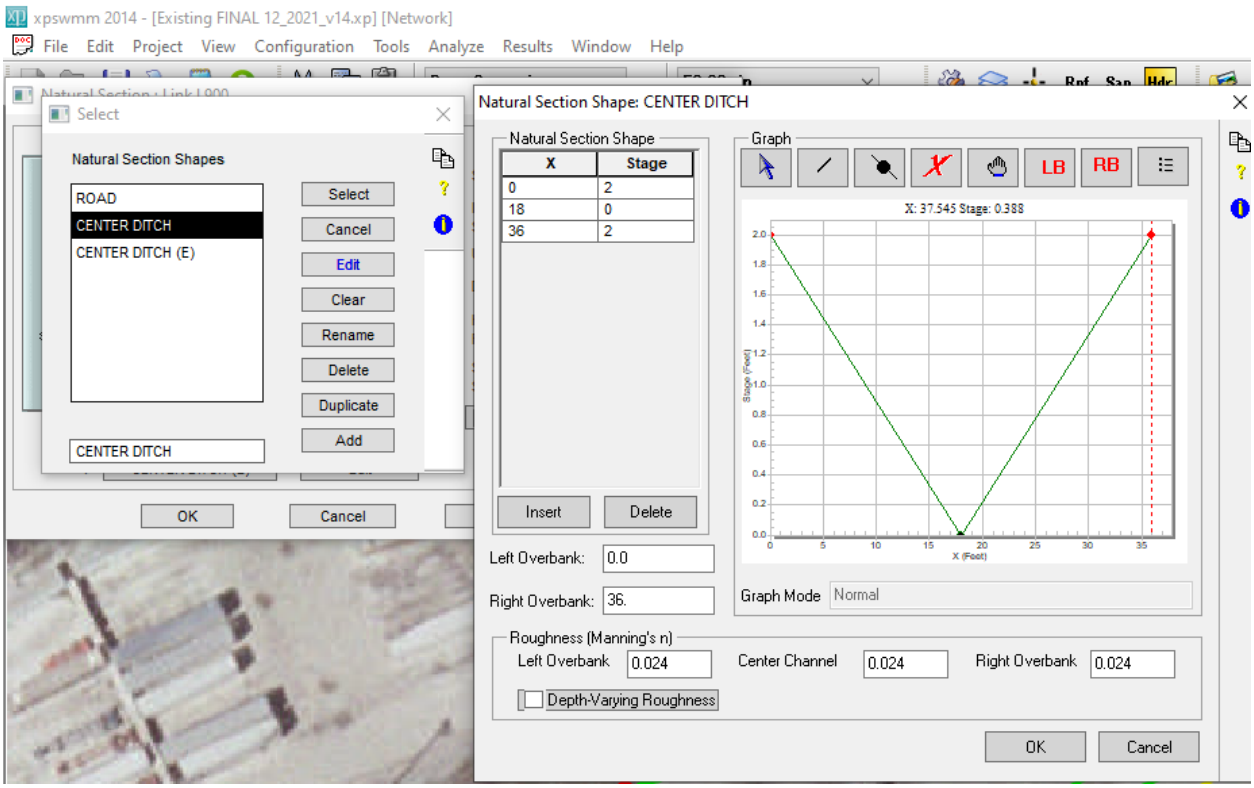
Name	Storm	Diameter (Hei	Downstream I	Upstream Inve	Length	Upstream Cro	Downstream	Upstream Nod	Downstream
L896	100-30min	3.000	591.450	597.980	420.000	600.980	N922	N902	594.450
n902 ss	100-30min	1.000	592.100	592.980	84.000	593.980	N903	N902	593.100
L891	100-30min	3.000	592.060	596.900	293.000	599.900	N876	N903	595.060
n903 ss3	100-30min	1.500	590.070	591.650	222.000	593.150	N899	N903	591.570
L910	100-30min	1.000	595.290	598.030	207.000	599.030	N907	N904	596.290
n904 ss	100-30min	1.000	593.040	593.130	61.000	594.130	N905	N904	594.040
n905 ss	100-30min	1.000	592.000	593.040	11.000	594.040	N903	N905	593.000
n905 ol1	100-30min	1.000	596.900	598.740	11.000	599.740	N903	N905	597.900
n906 ss2	100-30min	4.500	584.350	584.541	208.000	589.041	N932	N906	588.850
L892	100-30min	1.000	591.870	595.490	335.000	596.490	N873	N907	592.870
n907 ss	100-30min	1.000	592.000	592.840	30.000	593.840	N906	N907	593.000
L906	100-30min	1.000	578.020	582.650	475.000	583.650	N923	N908	579.020
n908 ss	100-30min	1.000	576.770	578.170	90.000	579.170	N909	N908	577.770
L905	100-30min	2.000	577.310	580.620	370.000	582.620	N911	N909	579.310
n909 ss	100-30min	1.000	576.000	576.770	37.000	577.770	N870	N909	577.000
n909 ol1	100-30min	1.000	583.000	580.620	35.000	581.620	N870	N909	584.000
n910 ss	100-30min	4.500	563.520	563.715	80.000	568.215	N848	N910	568.020
L908	100-30min	2.000	576.690	577.310	191.000	579.310	SAG	N911	578.690
n911 ss	100-30min	1.000	572.000	572.660	21.000	573.660	N910	N911	573.000
n911 ol1	100-30min	1.000	578.500	577.310	22.000	578.310	N910	N911	579.500
L881	100-30min	1.000	585.940	586.320	66.000	587.320	N859	N913	586.940
n913 ss	100-30min	1.000	578.260	582.960	125.000	583.960	N860	N913	579.260
L871	100-30min	1.000	597.410	600.240	325.000	601.240	N920	N914	598.410
n914 ss	100-30min	3.000	583.350	584.390	335.000	587.390	N915	N914	586.350
L874	100-30min	2.000	591.410	596.000	605.000	598.000	N840	N915	593.410
n915 ss	100-30min	3.000	582.958	583.350	147.000	586.350	N916	N915	585.958
n918 ss	100-30min	6.000	578.500	580.000	300.000	586.000	OUT2	N916	584.500
n918 ol	100-30min	2.000	596.325	600.980	629.000	602.980	N915	N918	598.325
918 ss	100-30min	1.000	591.901	596.430	629.000	597.430	N915	N918	592.901
L872	100-30min	1.000	590.990	597.940	750.000	598.940	N853	N919	591.990
n919 ss	100-30min	3.000	582.958	583.940	388.000	586.940	N916	N919	585.958
L873	100-30min	1.000	592.800	597.410	575.000	598.410	N839	N920	593.800
n920 ss	100-30min	1.000	590.000	592.510	80.000	593.510	N915	N920	591.000
L898	100-30min	1.000	585.210	594.500	422.000	595.500	N875	N921	586.210
n921 ss	100-30min	5.000	562.060	562.112	86.000	567.112	N851	N921	567.060
n921 ol	100-30min	1.000	594.560	593.500	86.000	594.500	N851	N921	595.560

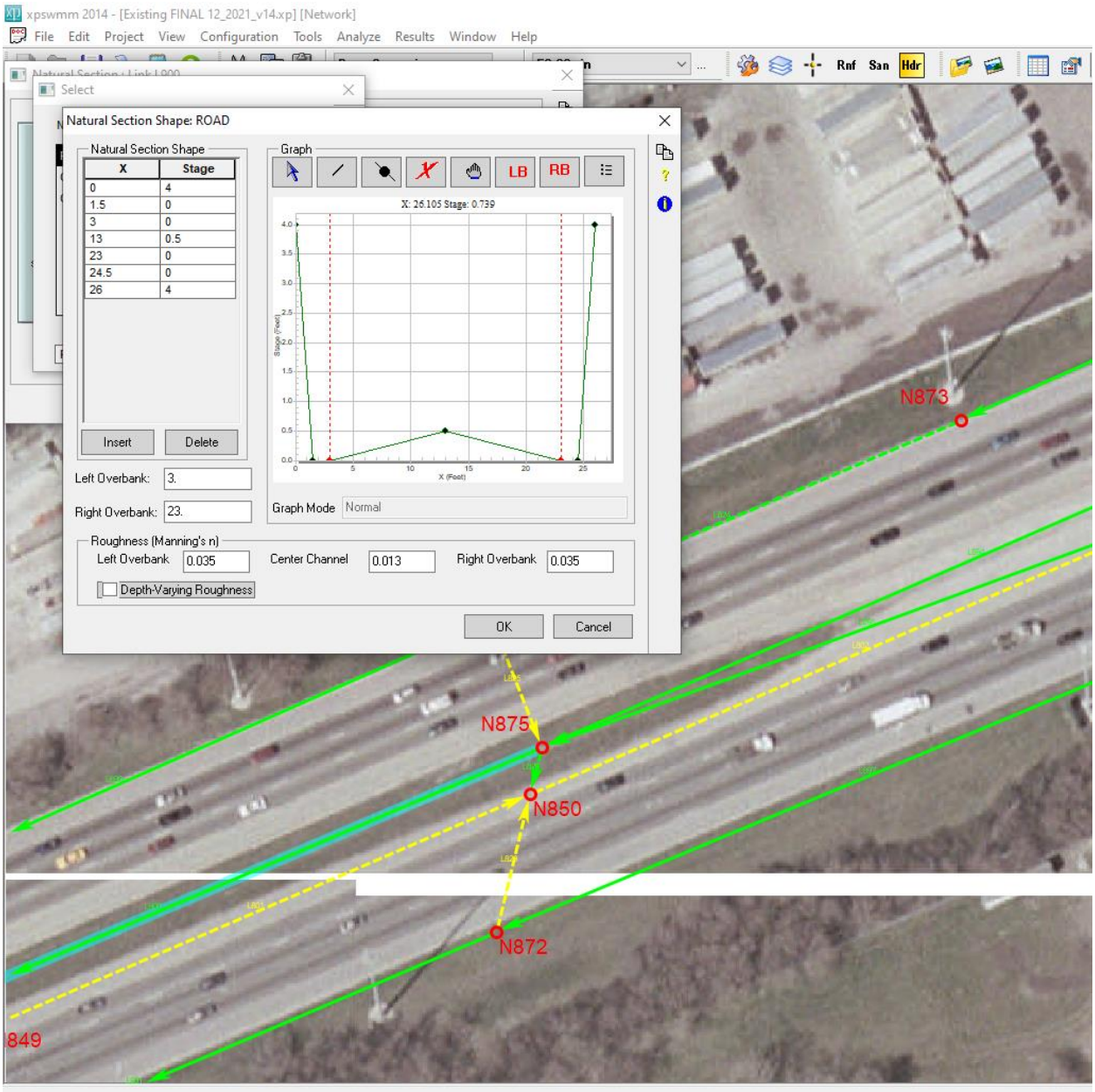
LINK DATA

Name	Storm	Diameter (Hei	Downstream I	Upstream Inve	Length	Upstream Cro	Downstream	Upstream Nod	Downstream
L897	100-30min	1.000	587.790	592.500	385.000	593.500	N872	N922	588.790
n922 ss	100-30min	1.000	584.170	589.150	127.000	590.150	N921	N922	585.170
L909	100-30min	1.000	577.310	578.020	100.000	579.020	N867	N923	578.310
n923 ss	100-30min	1.000	573.000	575.010	127.000	576.010	N910	N923	574.000
L907	100-30min	1.000	577.400	578.890	210.000	579.890	N869	N924	578.400
n924 ss	100-30min	1.000	572.000	573.460	56.000	574.460	N910	N924	573.000
n893 ol	100-30min	1.000	603.440	597.000	50.000	598.000	N893	N925	604.440
n926 ss	100-30min	1.500	588.110	588.090	22.000	589.590	N889	N926	589.610
n926 ol1	100-30min	1.000	600.910	597.740	22.000	598.740	N889	N926	601.910
n903 ol	100-30min	2.000	596.900	597.740	190.000	599.740	N903	N926	598.900
n903 ss2	100-30min	1.250	591.650	590.070	222.000	591.320	N903	N926	592.900
L929	100-30min	1.000	606.300	609.380	260.000	610.380	N891	N928	607.300
n928 ss	100-30min	1.000	603.950	605.340	80.000	606.340	N883	N928	604.950
L930	100-30min	1.000	606.490	609.740	275.000	610.740	N897	N929	607.490
n929 ss	100-30min	1.000	603.310	604.690	87.000	605.690	N883	N929	604.310
n879 ss	100-30min	4.500	584.541	584.860	348.000	589.360	N906	N931	589.041
n906 ss	100-30min	4.500	583.720	584.350	255.000	588.850	N934	N932	588.220
n933 ss	100-30min	4.500	587.380	587.390	230.000	591.890	N894	N933	591.880
L942	100-30min	4.500	576.980	583.720	137.000	588.220	OUT1	N934	581.480

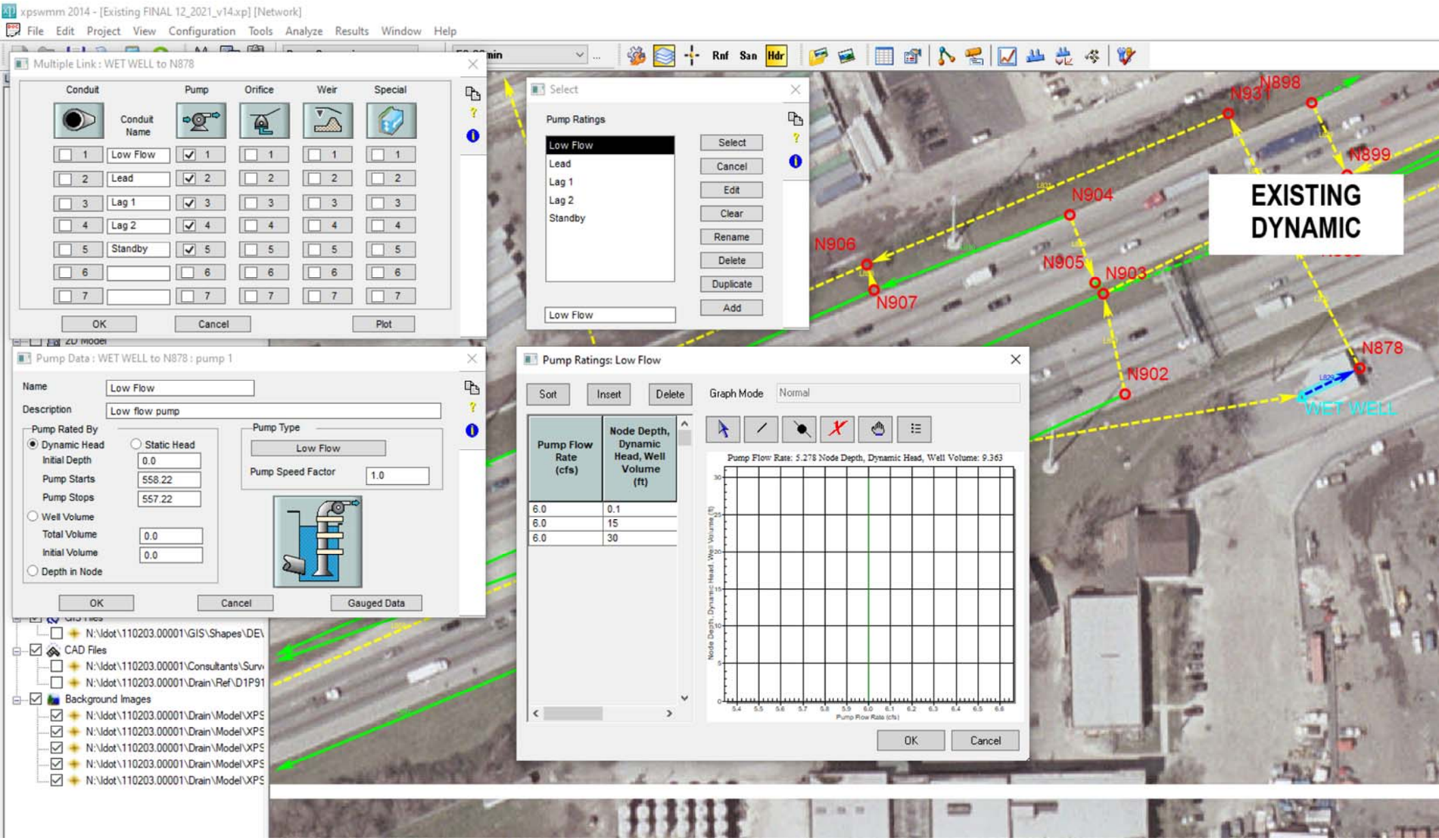
Channel Input Typicals

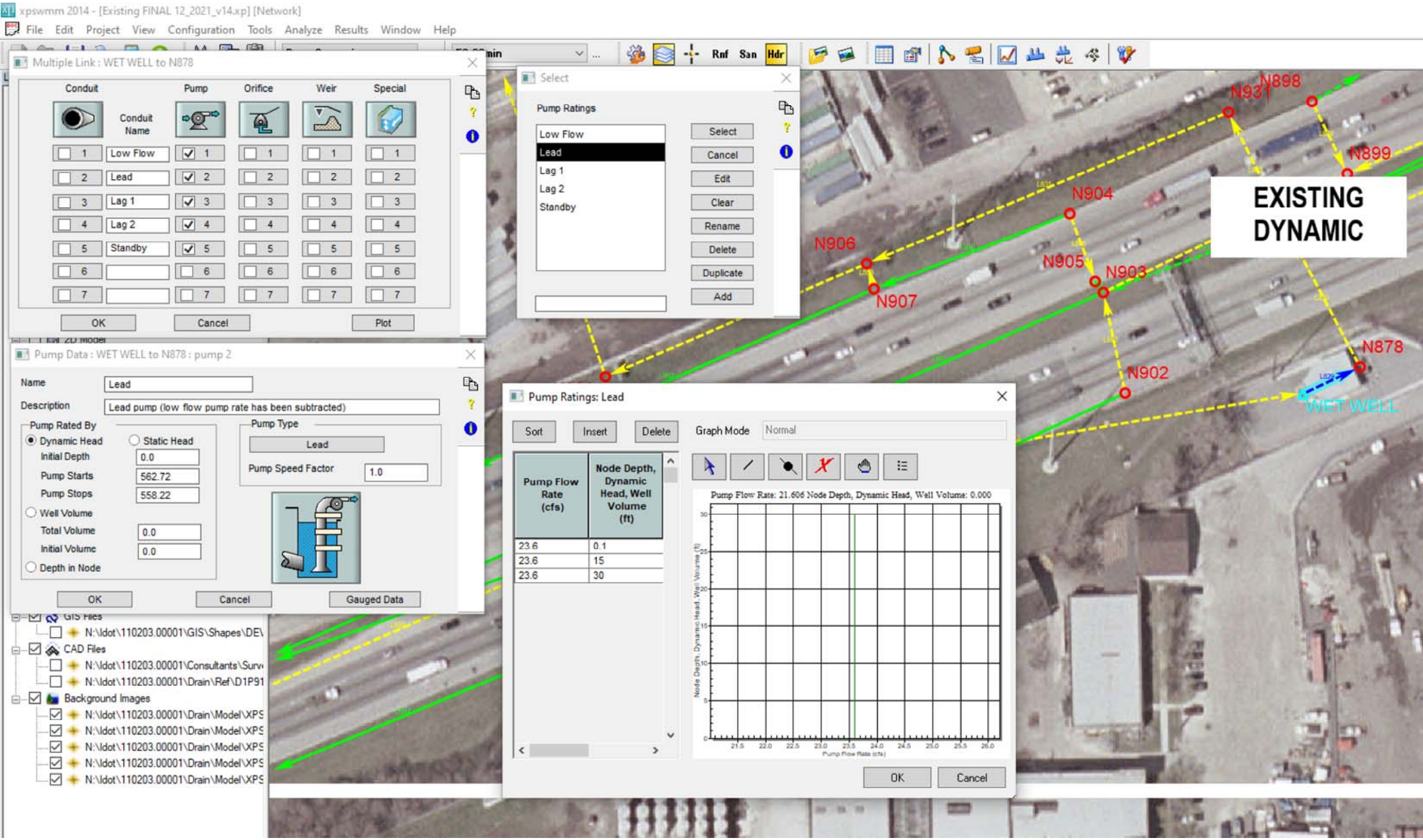


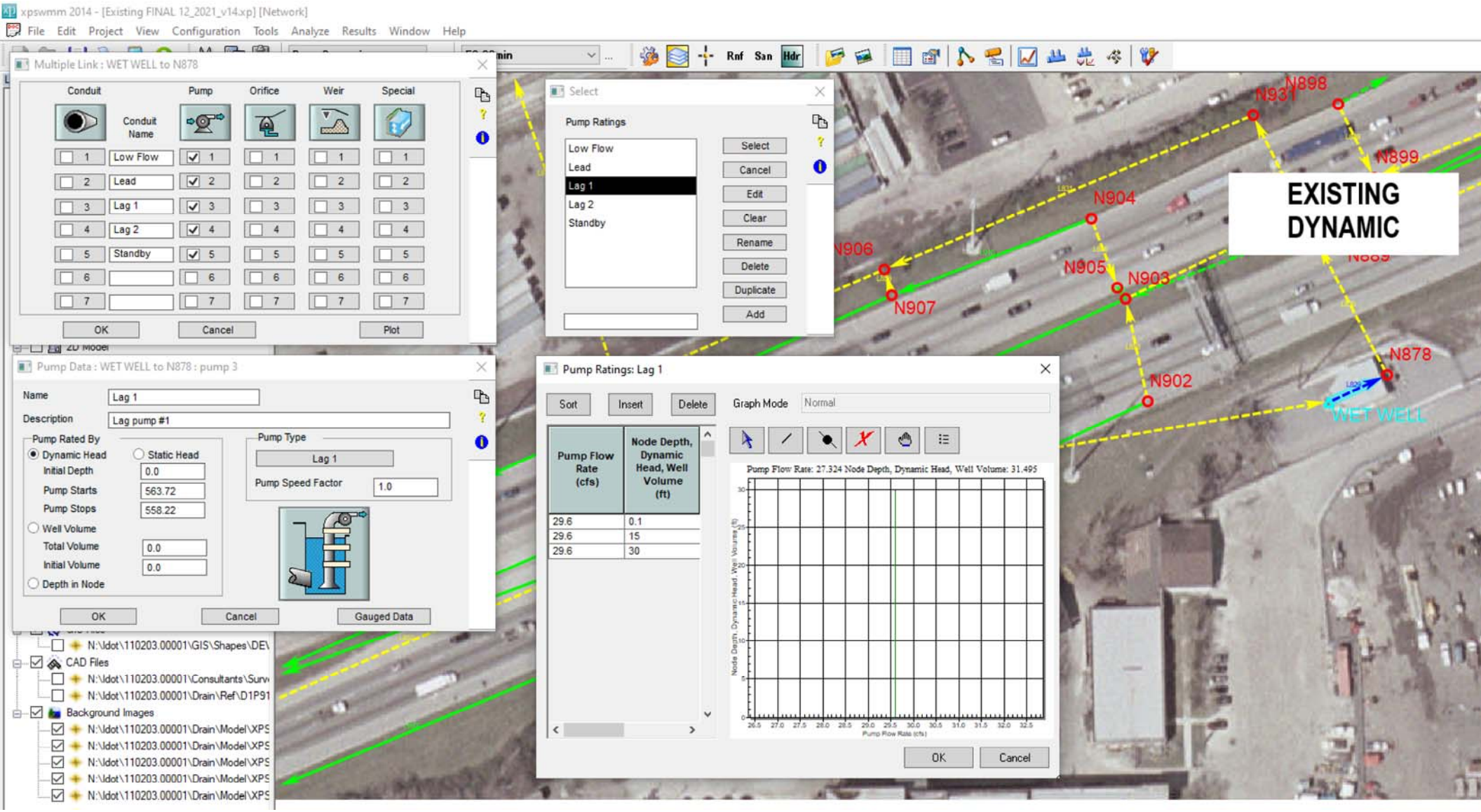


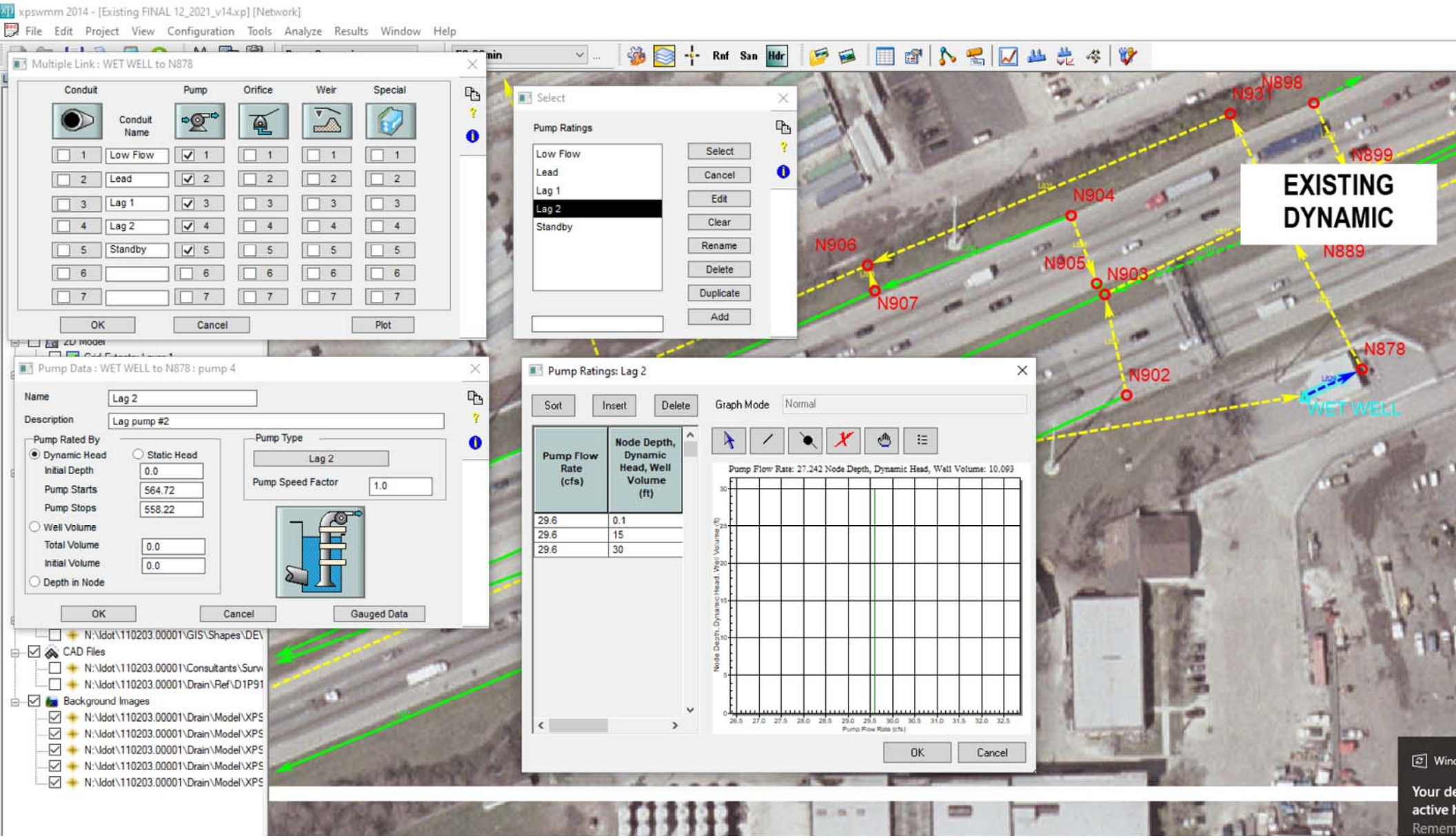

xpswmm 2014 - [Existing FINAL 12_2021_v14.xp] [Network]
File Edit Project View Configuration Tools Analyze Results Window Help
Rnf San Hdr
Select
Natural Section Shape: ROAD
Natural Section Shape
X Stage
0 4
1.5 0
3 0
13 0.5
23 0
24.5 0
26 4
Insert Delete
Graph
LB RB
X: 26.105 Stage: 0.739
Left Overbank: 3.
Right Overbank: 23.
Graph Mode Normal
Roughness (Manning's n)
Left Overbank 0.035
Center Channel 0.013
Right Overbank 0.035
Depth-Varying Roughness
OK Cancel
N873
N875
N850
N872
849

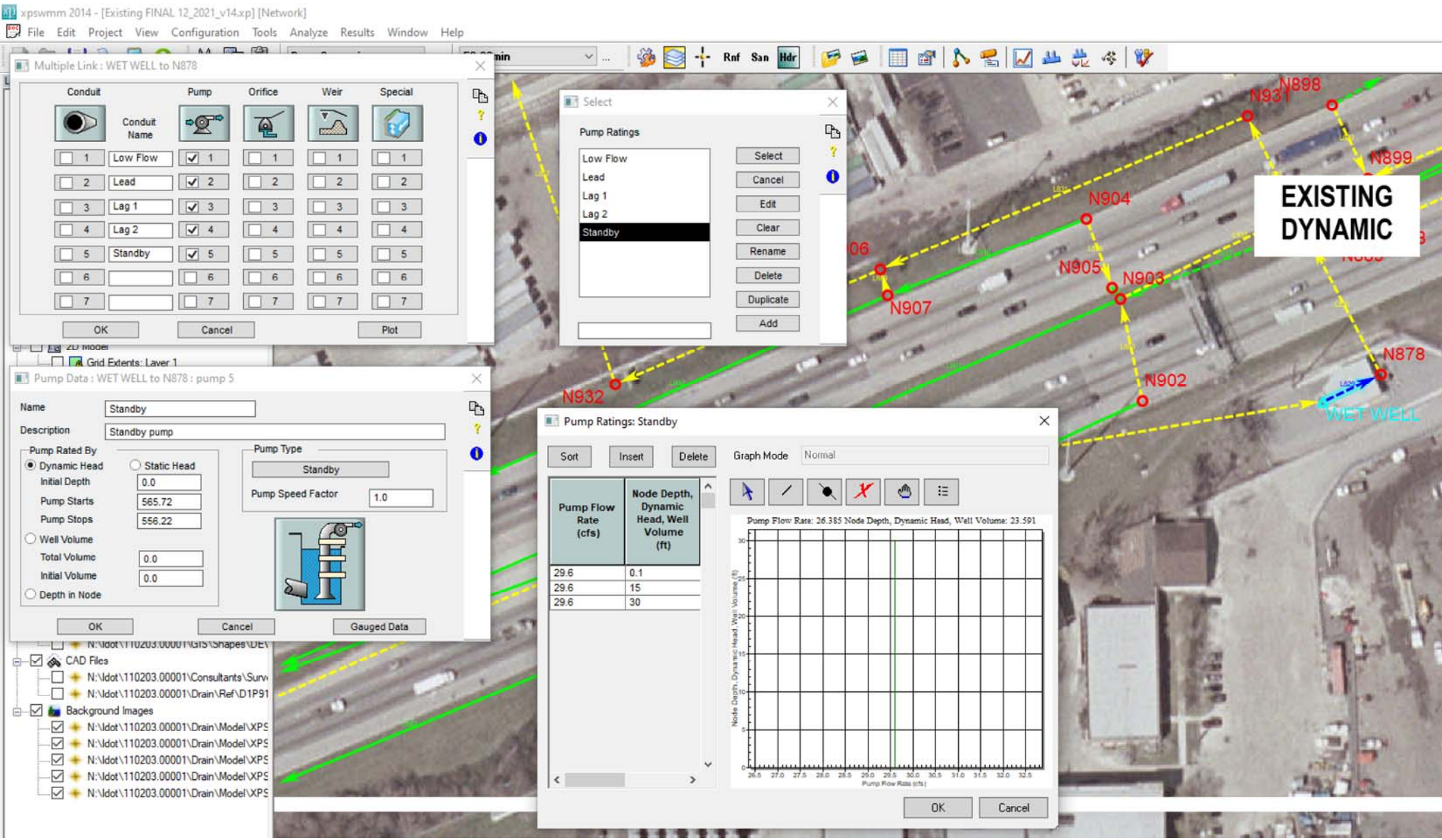
EXISTING CONDITIONS RESULTS


xpswmm 2014 - [Existing FINAL 12_2021_v14.xp] [Network]
File Edit Project View Configuration Tools Analyze Results Window Help
Multiple Link : WET WELL to N878
Conduit
Pump
Orifice
Weir
Special
Conduit Name
1 Low Flow
2 Lead
3 Lag 1
4 Lag 2
5 Standby
6
7
OK
Cancel
Plot
Select
Pump Ratings
Low Flow
Lead
Lag 1
Lag 2
Standby
Select
Cancel
Edit
Clear
Rename
Delete
Duplicate
Add
Low Flow
Pump Data : WET WELL to N878 : pump 1
Name Low Flow
Description Low flow pump
Pump Rated By
Dynamic Head
Static Head
Initial Depth 0.0
Pump Starts 558.22
Pump Stops 557.22
Well Volume
Total Volume 0.0
Initial Volume 0.0
Depth in Node
Pump Type
Low Flow
Pump Speed Factor 1.0
OK
Cancel
Gauged Data
Pump Ratings: Low Flow
Sort
Insert
Delete
Graph Mode Normal
Pump Flow Rate (cfs)
Node Depth, Dynamic Head, Well Volume (ft)
6.0 0.1
6.0 15
6.0 30
Pump Flow Rate: 5.278 Node Depth, Dynamic Head, Well Volume: 9.363
Node Depth, Dynamic Head, Well Volume (ft)
Pump Flow Rate (cfs)
OK
Cancel
N:\ldot\110203.00001\GIS\Shapes\DE\
CAD Files
N:\ldot\110203.00001\Consultants\Surv
N:\ldot\110203.00001\Drain\Ref\D1P91
Background Images
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N931
N898
N899
N904
N906
N905
N903
N907
N902
N878
WET WELL
EXISTING DYNAMIC


xpswmm 2014 - [Existing FINAL 12_2021_v14.xp] [Network]
File Edit Project View Configuration Tools Analyze Results Window Help
Multiple Link : WET WELL to N878
Conduit
Pump
Orifice
Weir
Special
Conduit Name
1 Low Flow
2 Lead
3 Lag 1
4 Lag 2
5 Standby
6
7
OK
Cancel
Plot
Select
Pump Ratings
Low Flow
Lead
Lag 1
Lag 2
Standby
Select
Cancel
Edit
Clear
Rename
Delete
Duplicate
Add
Pump Data : WET WELL to N878 : pump 2
Name
Lead
Description
Lead pump (low flow pump rate has been subtracted)
Pump Rated By
Dynamic Head
Static Head
Initial Depth
0.0
Pump Starts
562.72
Pump Stops
558.22
Well Volume
Total Volume
0.0
Initial Volume
0.0
Depth in Node
Pump Type
Lead
Pump Speed Factor
1.0
OK
Cancel
Gauged Data
Pump Ratings: Lead
Sort
Insert
Delete
Graph Mode
Normal
Pump Flow Rate (cfs)
Node Depth, Dynamic Head, Well Volume (ft)
23.6 0.1
23.6 15
23.6 30
Pump Flow Rate: 21.606 Node Depth, Dynamic Head, Well Volume: 0.000
OK
Cancel
GIS Files
N:\ldot\110203.00001\GIS\Shapes\DE\
CAD Files
N:\ldot\110203.00001\Consultants\Surv
N:\ldot\110203.00001\Drain\Ref\D1P91
Background Images
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N931
N898
N899
N904
N906
N905
N903
N907
N902
N878
WET WELL
EXISTING
DYNAMIC


xpswmm 2014 - [Existing FINAL 12_2021_v14.xp] [Network]
File Edit Project View Configuration Tools Analyze Results Window Help
Multiple Link : WET WELL to N878
Conduit
Pump
Orifice
Weir
Special
Conduit Name
1 Low Flow
2 Lead
3 Lag 1
4 Lag 2
5 Standby
6
7
OK
Cancel
Plot
Select
Pump Ratings
Low Flow
Lead
Lag 1
Lag 2
Standby
Select
Cancel
Edit
Clear
Rename
Delete
Duplicate
Add
Pump Data : WET WELL to N878 : pump 3
Name Lag 1
Description Lag pump #1
Pump Rated By
Dynamic Head
Static Head
Initial Depth 0.0
Pump Starts 563.72
Pump Stops 558.22
Well Volume
Total Volume 0.0
Initial Volume 0.0
Depth in Node
Pump Type
Lag 1
Pump Speed Factor 1.0
OK
Cancel
Gauged Data
Pump Ratings: Lag 1
Sort
Insert
Delete
Graph Mode Normal
Pump Flow Rate (cfs)
Node Depth, Dynamic Head, Well Volume (ft)
29.6 0.1
29.6 15
29.6 30
Pump Flow Rate: 27.324 Node Depth, Dynamic Head, Well Volume: 31.495
OK
Cancel
N898
N931
N899
N904
N906
N905
N903
N907
N902
N878
WET WELL
EXISTING
DYNAMIC
N:\ldot\110203.00001\GIS\Shapes\DE\
CAD Files
N:\ldot\110203.00001\Consultants\Surv
N:\ldot\110203.00001\Drain\Ref\D1P91
Background Images
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS


xpswmm 2014 - [Existing FINAL 12_2021_v14.xp] [Network]
File Edit Project View Configuration Tools Analyze Results Window Help
Multiple Link : WET WELL to N878
Conduit
Pump
Orifice
Weir
Special
Conduit Name
1 Low Flow
2 Lead
3 Lag 1
4 Lag 2
5 Standby
6
7
OK
Cancel
Plot
Select
Pump Ratings
Low Flow
Lead
Lag 1
Lag 2
Standby
Select
Cancel
Edit
Clear
Rename
Delete
Duplicate
Add
Pump Data : WET WELL to N878 : pump 4
Name
Lag 2
Description
Lag pump #2
Pump Rated By
Dynamic Head
Static Head
Initial Depth
0.0
Pump Starts
564.72
Pump Stops
558.22
Well Volume
Total Volume
0.0
Initial Volume
0.0
Depth in Node
Pump Type
Lag 2
Pump Speed Factor
1.0
OK
Cancel
Gauged Data
Pump Ratings: Lag 2
Sort
Insert
Delete
Graph Mode
Normal
Pump Flow Rate (cfs)
Node Depth, Dynamic Head, Well Volume (ft)
29.6 0.1
29.6 15
29.6 30
Pump Flow Rate: 27.242 Node Depth, Dynamic Head, Well Volume: 10.093
OK
Cancel
N898
N931
N899
N904
N906
N905
N903
N889
N907
N902
N878
WET WELL
EXISTING DYNAMIC
N:\ldot\110203.00001\GIS\Shapes\DE\
CAD Files
N:\ldot\110203.00001\Consultants\Surv
N:\ldot\110203.00001\Drain\Ref\D1P91
Background Images
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS
N:\ldot\110203.00001\Drain\Model\XPS


xpswmm 2014 - [Existing FINAL 12_2021_v14.xp] [Network]
File Edit Project View Configuration Tools Analyze Results Window Help
Multiple Link : WET WELL to N878
Conduit
Pump
Orifice
Weir
Special
Conduit Name
1 Low Flow
2 Lead
3 Lag 1
4 Lag 2
5 Standby
6
7
OK
Cancel
Plot
Select
Pump Ratings
Low Flow
Lead
Lag 1
Lag 2
Standby
Select
Cancel
Edit
Clear
Rename
Delete
Duplicate
Add
Pump Data : WET WELL to N878 : pump 5
Name
Standby
Description
Standby pump
Pump Rated By
Dynamic Head
Static Head
Initial Depth
0.0
Pump Starts
565.72
Pump Stops
556.22
Well Volume
Total Volume
0.0
Initial Volume
0.0
Depth in Node
Pump Type
Standby
Pump Speed Factor
1.0
OK
Cancel
Gauged Data
Pump Ratings: Standby
Sort
Insert
Delete
Graph Mode
Normal
Pump Flow Rate (cfs)
Node Depth, Dynamic Head, Well Volume (ft)
29.6 0.1
29.6 15
29.6 30
Pump Flow Rate: 26.385 Node Depth, Dynamic Head, Well Volume: 23.591
OK
Cancel
EXISTING DYNAMIC
N931
N898
N899
N904
N905
N903
N907
N902
N878
N932
WET WELL
CAD Files
Background Images

EXISTING CONDITIONS
DYNAMIC RESULTS
50-YR 30-MIN EVENT

60" & 54" Main Drain HGL

xpswmm 2014 - [Dynamic Long Section]

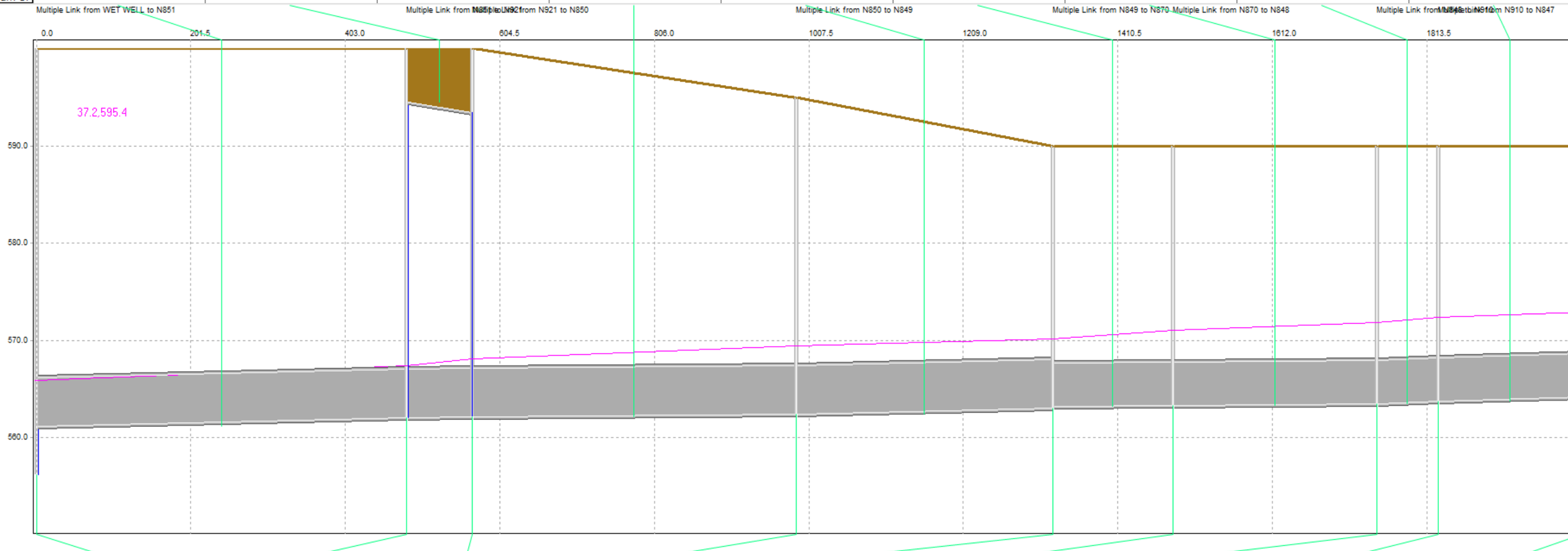
File View Window

Base Scenario | 50-30min | Active Subcatchments | Close

Alternative 1
Day [0]

LINK DATA

	n851 ss	n921 ss	n921 ol	n850 ss	n849 ss	n870 ss	n848 ss	n910 ss	n847 ss
Storm	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min
Diameter (He	5.000	5.000	1.000	5.000	5.000	4.500	4.500	4.500	4.500
Downstream	561.170	562.060	594.560	562.112	562.370	563.210	563.320	563.520	563.715
Upstream Inv	562.060	562.112	593.500	562.370	563.060	563.320	563.520	563.715	564.170
Length	483.000	86.000	86.000	422.000	335.000	157.000	266.000	80.000	186.000
Upstream Cr	567.060	567.112	594.500	567.370	568.060	567.820	568.020	568.215	568.670



	WET WELL	N851	N921	N850	N849	N870	N848	N910	N847
Storm	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min
Max Water El	565.925	567.434	568.111	569.406	570.160	571.029	571.862	572.411	572.930

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

EXISTING CONDITIONS
DYNAMIC RESULTS
50-YR 30-MIN EVENT

54" Outfall Storm Sewer HGL

xpswmm 2014 - [Dynamic Long Section]

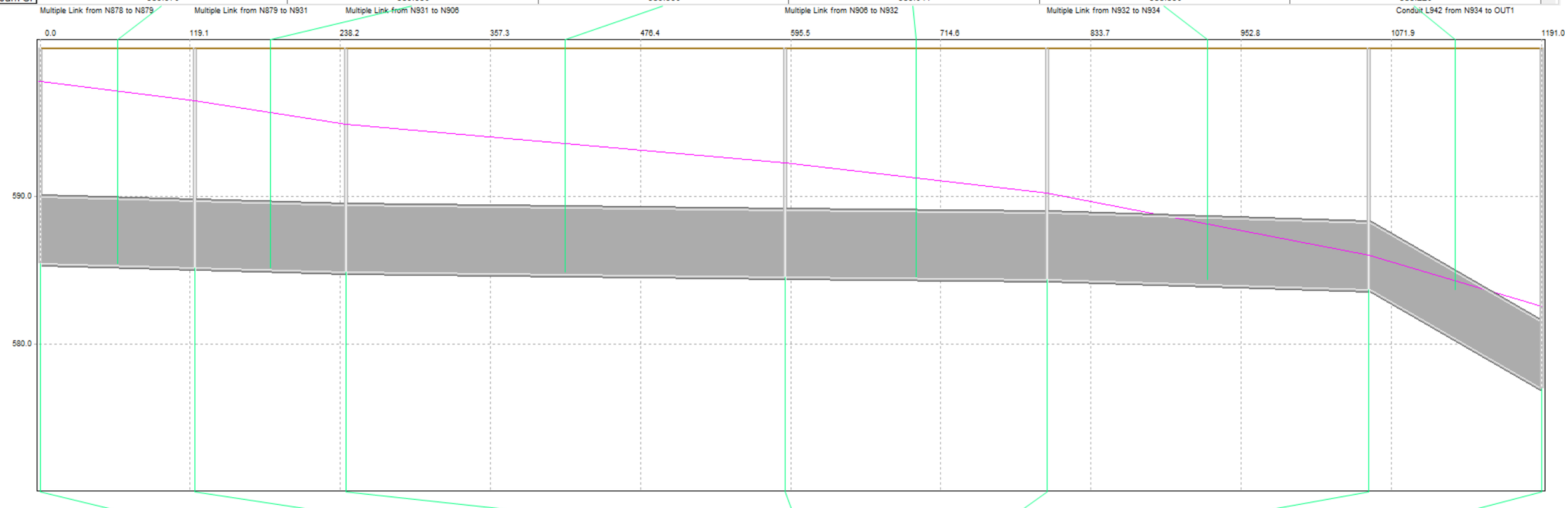
File View Window

Base Scenario | 50-30min | Active Subcatchments | Close

Alternative 1
Day [0]

LINK DATA

	n878 ss	n879ss2	n879 ss	n906 ss2	n906 ss	L942
Storm	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min
Diameter (He	4.500	4.500	4.500	4.500	4.500	4.500
Downstream	585.150	584.860	584.541	584.350	583.720	576.980
Upstream Inv	585.470	585.150	584.860	584.541	584.350	583.720
Length	123.000	120.000	348.000	208.000	255.000	137.000
Upstream Cr	589.970	589.650	589.360	589.041	588.850	588.220



	N878	N879	N931	N906	N932	N934	OUT1
Storm	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min
Max Water El	597.762	596.462	594.852	592.237	590.212	586.001	582.570

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

EXISTING CONDITIONS
DYNAMIC RESULTS
100-YR 1-HR EVENT
60" & 54" Main Drain HGL

xpswmm 2014 - [Dynamic Long Section]

File View Window

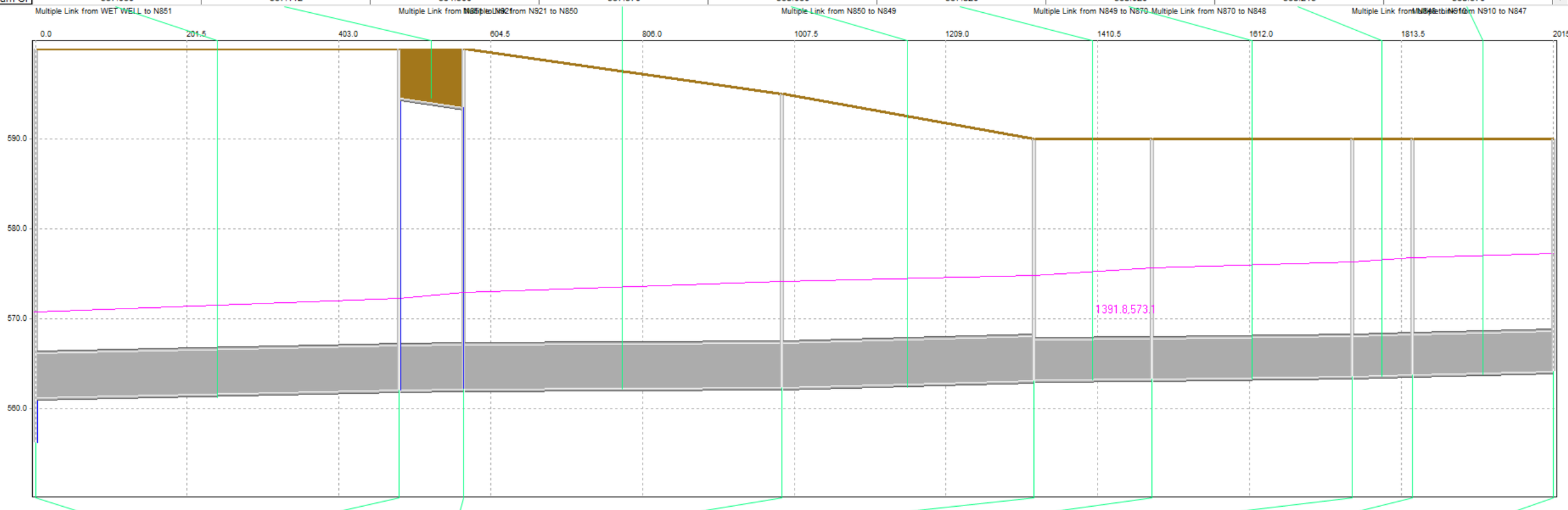
Base Scenario | 100-1 | Active Subcatchments | Close

Alternative 1

Alternative 1
Day [0] Time 00:01:00 Step 6

LINK DATA

	n851 ss	n921 ss	n921 ol	n850 ss	n849 ss	n870 ss	n848 ss	n910 ss	n847 ss
Storm	100-1	100-1	100-1	100-1	100-1	100-1	100-1	100-1	100-1
Diameter (He	5.000	5.000	1.000	5.000	5.000	4.500	4.500	4.500	4.500
Downstream	561.170	562.060	594.560	562.112	562.370	563.210	563.320	563.520	563.715
Upstream Inv	562.060	562.112	593.500	562.370	563.060	563.320	563.520	563.715	564.170
Length	483.000	86.000	86.000	422.000	335.000	157.000	266.000	80.000	186.000
Upstream Cr	567.060	567.112	594.500	567.370	568.060	567.820	568.020	568.215	568.670



	WET WELL	N851	N921	N850	N849	N870	N848	N910	N847
Storm	100-1	100-1	100-1	100-1	100-1	100-1	100-1	100-1	100-1
Max Water El	570.750	572.280	572.955	574.170	574.849	575.622	576.351	576.811	577.258

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

EXISTING CONDITIONS
DYNAMIC RESULTS
100-YR 1-HR EVENT
54" Outfall Storm Sewer HGL

xpswmm 2014 - [Dynamic Long Section]

File View Window

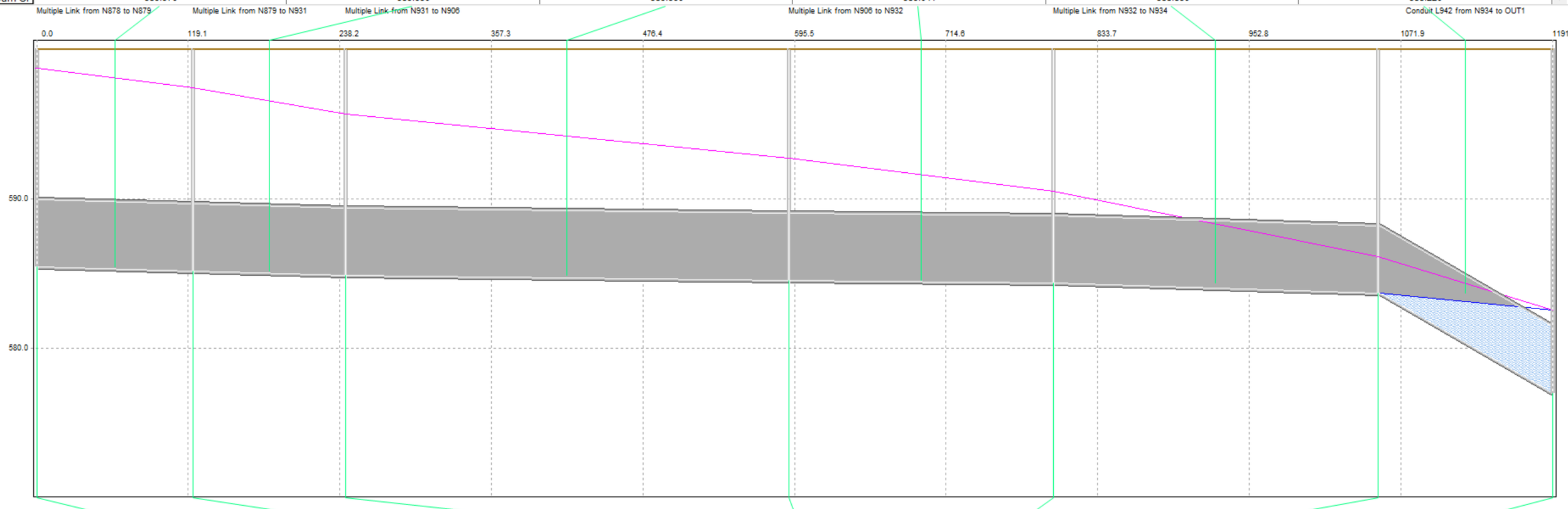
Base Scenario | 100-1 | Active Subcatchments | Close

Alternative 1

Alternative 1
Day [0] Time 00:01:00 Step 6

LINK DATA

	n878 ss	n879ss2	n879 ss	n906 ss2	n906 ss	L942
Storm	100-1	100-1	100-1	100-1	100-1	100-1
Diameter (He	4.500	4.500	4.500	4.500	4.500	4.500
Downstream	585.150	584.860	584.541	584.350	583.720	576.980
Upstream Inv	585.470	585.150	584.860	584.541	584.350	583.720
Length	123.000	120.000	348.000	208.000	255.000	137.000
Upstream Cr	589.970	589.650	589.360	589.041	588.850	588.220



	N878	N879	N931	N906	N932	N934	OUT1
Storm	100-1	100-1	100-1	100-1	100-1	100-1	100-1
Max Water El	598.704	597.400	595.649	592.714	590.478	586.106	582.570

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

EXISTING CONDITIONS
DISCONNECT
50-YR 30-MIN EVENT

Kinematic - 10' Sewer HGL

xpswmm 2014 - [Dynamic Long Section]

File View Window

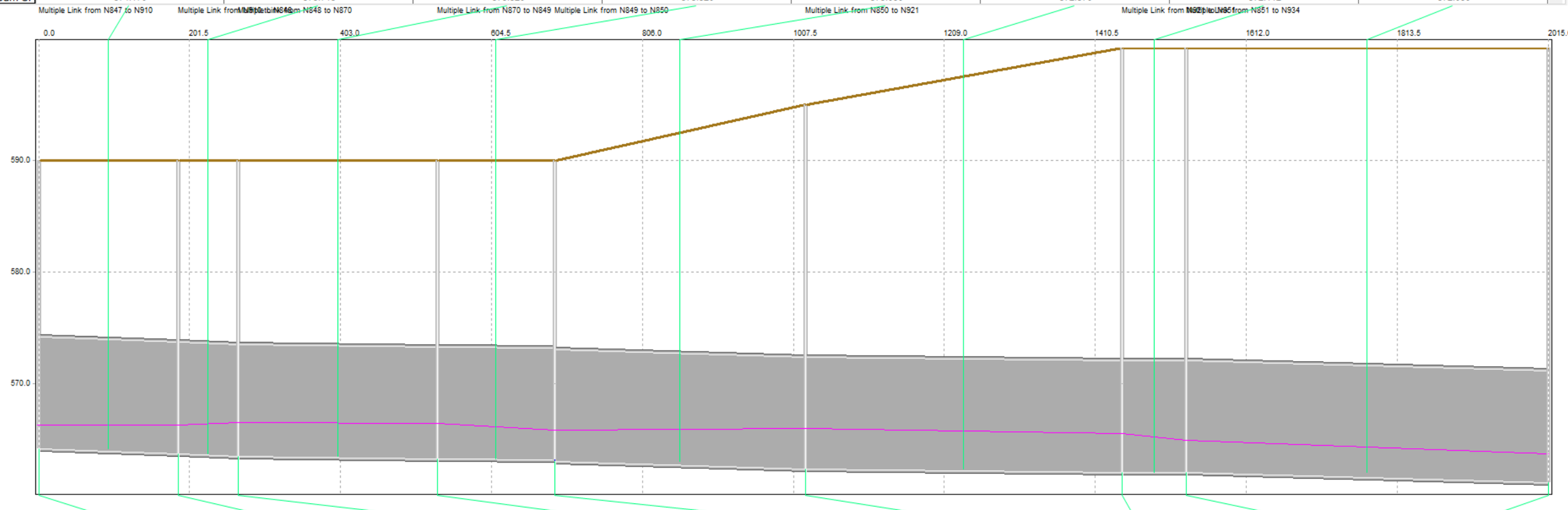
Base Scenario | 50-30min | Active Subcatchments | Close

Alternative 1

Alternative 1
Day [0] Time 00:01:00 Step 6

LINK DATA

	n847 ss	n910 ss	n848 ss	n870 ss	n849 ss	n850 ss	n921 ss	n851 ss
Storm	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min
Diameter (He	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000
Downstream	563.715	563.520	563.320	563.210	562.370	562.112	562.060	561.170
Upstream Inv	564.170	563.715	563.520	563.320	563.060	562.370	562.112	562.060
Length	186.000	80.000	266.000	157.000	335.000	422.000	86.000	483.000
Upstream Cr	574.170	573.715	573.520	573.320	573.060	572.370	572.112	572.060



	N847	N910	N848	N870	N849	N850	N921	N851	N934
Storm	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min
Max Water El	566.341	566.292	566.551	566.457	565.823	565.978	565.556	564.940	563.745

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

EXISTING CONDITIONS
DISCONNECT
100-YR 30-MIN EVENT

Kinematic - 10' Sewer HGL

14 - [Dynamic Long Section]

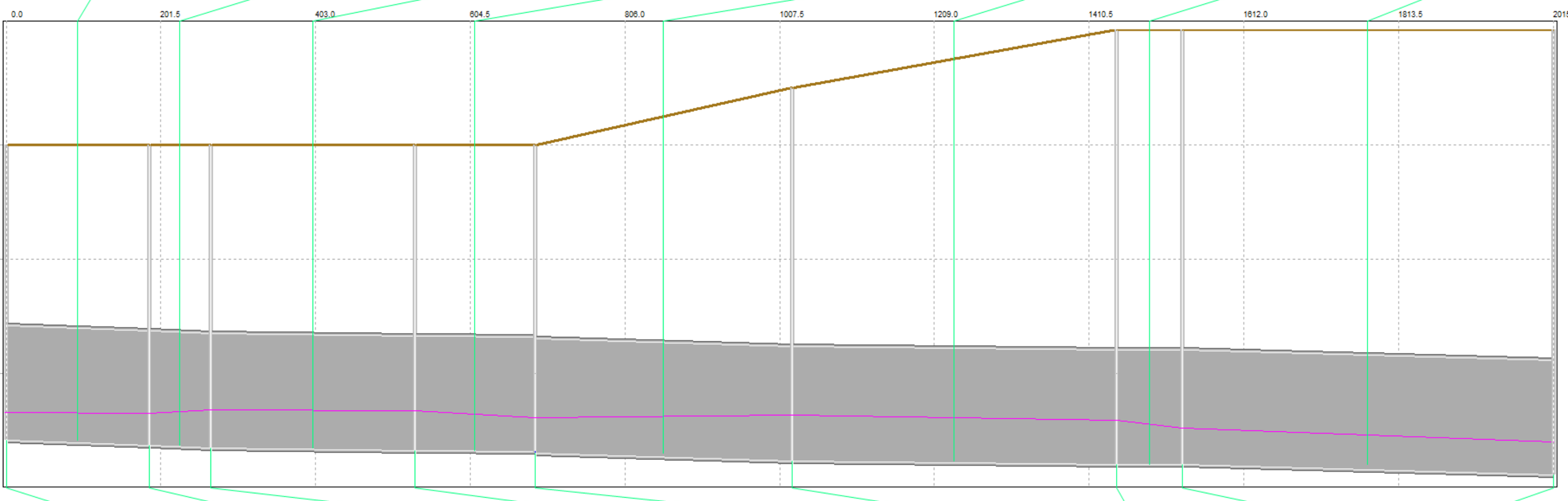
Window

Base Scenario | 100-30min | Active Subcatchments | Close

Alternative 1
Day [307]

n847 ss	n910 ss	n848 ss	n870 ss	n849 ss	n850 ss	n921 ss	n851 ss
100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min
10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000
563.715	563.520	563.320	563.210	562.370	562.112	562.060	561.170
564.170	563.715	563.520	563.320	563.060	562.370	562.112	562.060
186.000	80.000	266.000	157.000	335.000	422.000	86.000	483.000
574.170	573.715	573.520	573.320	573.060	572.370	572.112	572.060

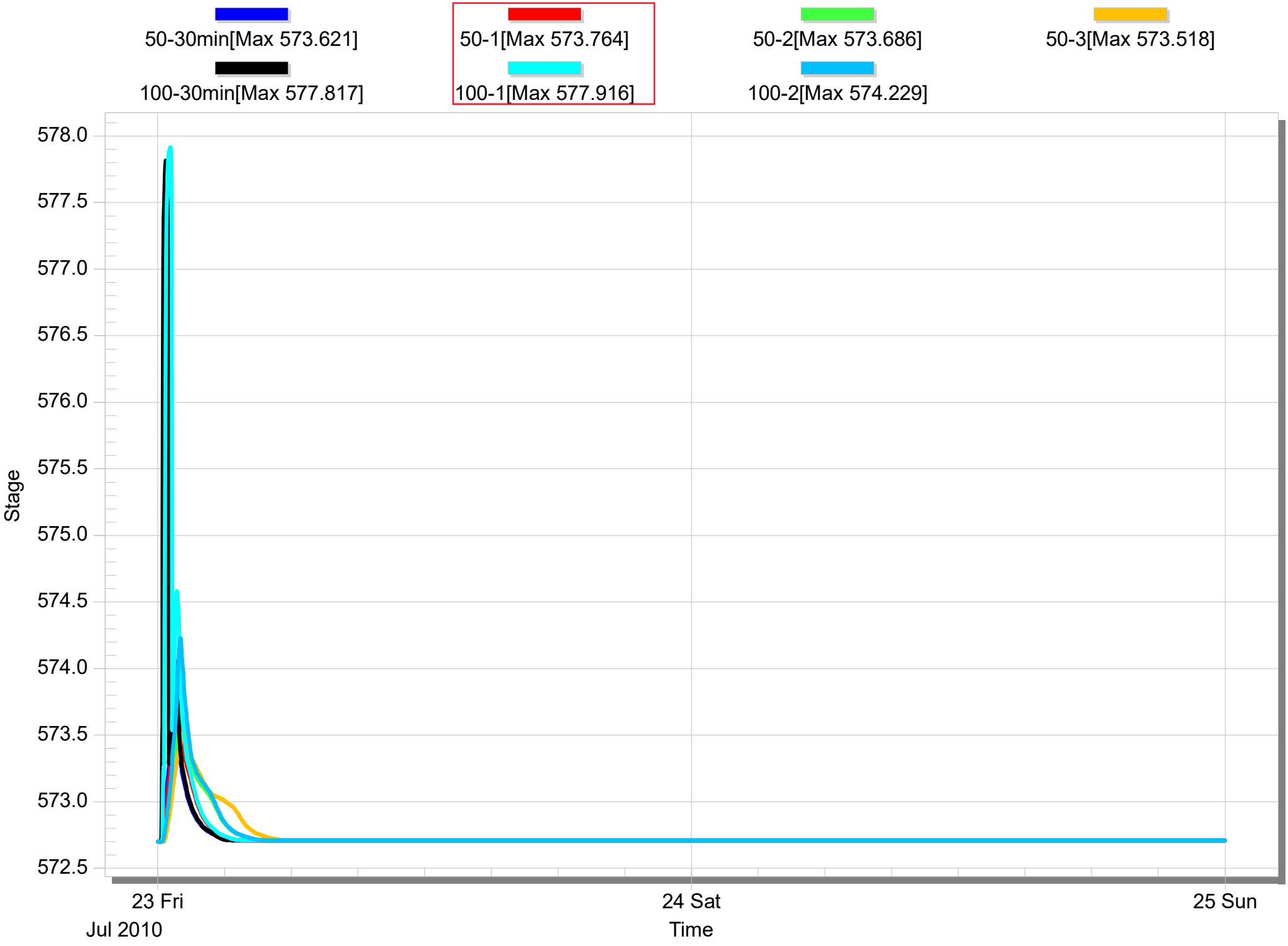
Multiple Link from N847 to N910 | Multiple Link from N910 to N848 | Multiple Link from N848 to N870 | Multiple Link from N870 to N849 | Multiple Link from N849 to N850 | Multiple Link from N850 to N921 | Multiple Link from N921 to N851 | Multiple Link from N851 to N934



N847	N910	N848	N870	N849	N850	N921	N851	N934
100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min
566.583	566.572	566.871	566.783	566.140	566.367	565.913	565.247	564.024

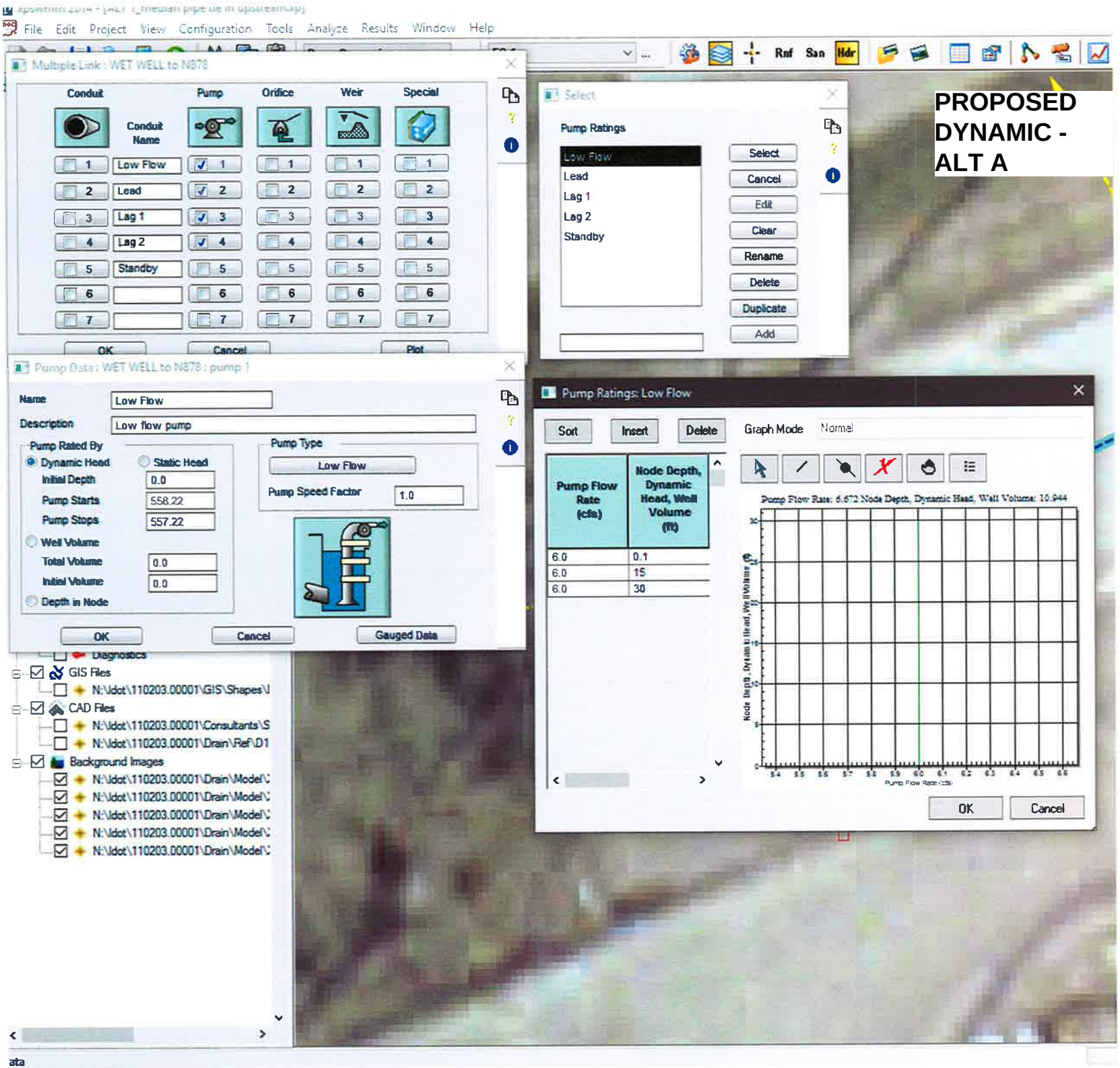
ameters | Hydro | Ponding | RESULTS | output

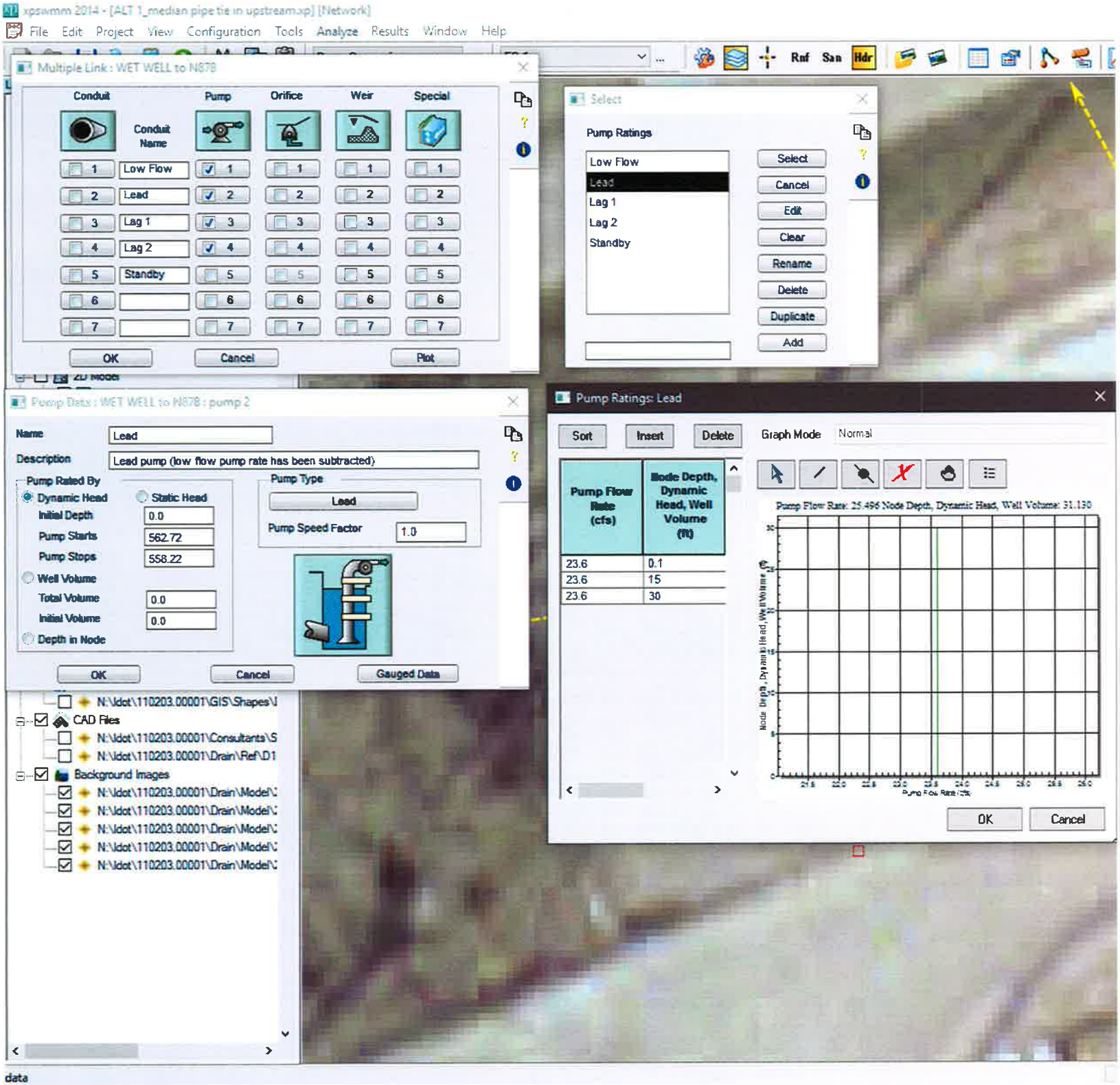
EXISTING CONDITIONS Node - N867
SAG LOCATION RIM=577.31 STATION~1195+00

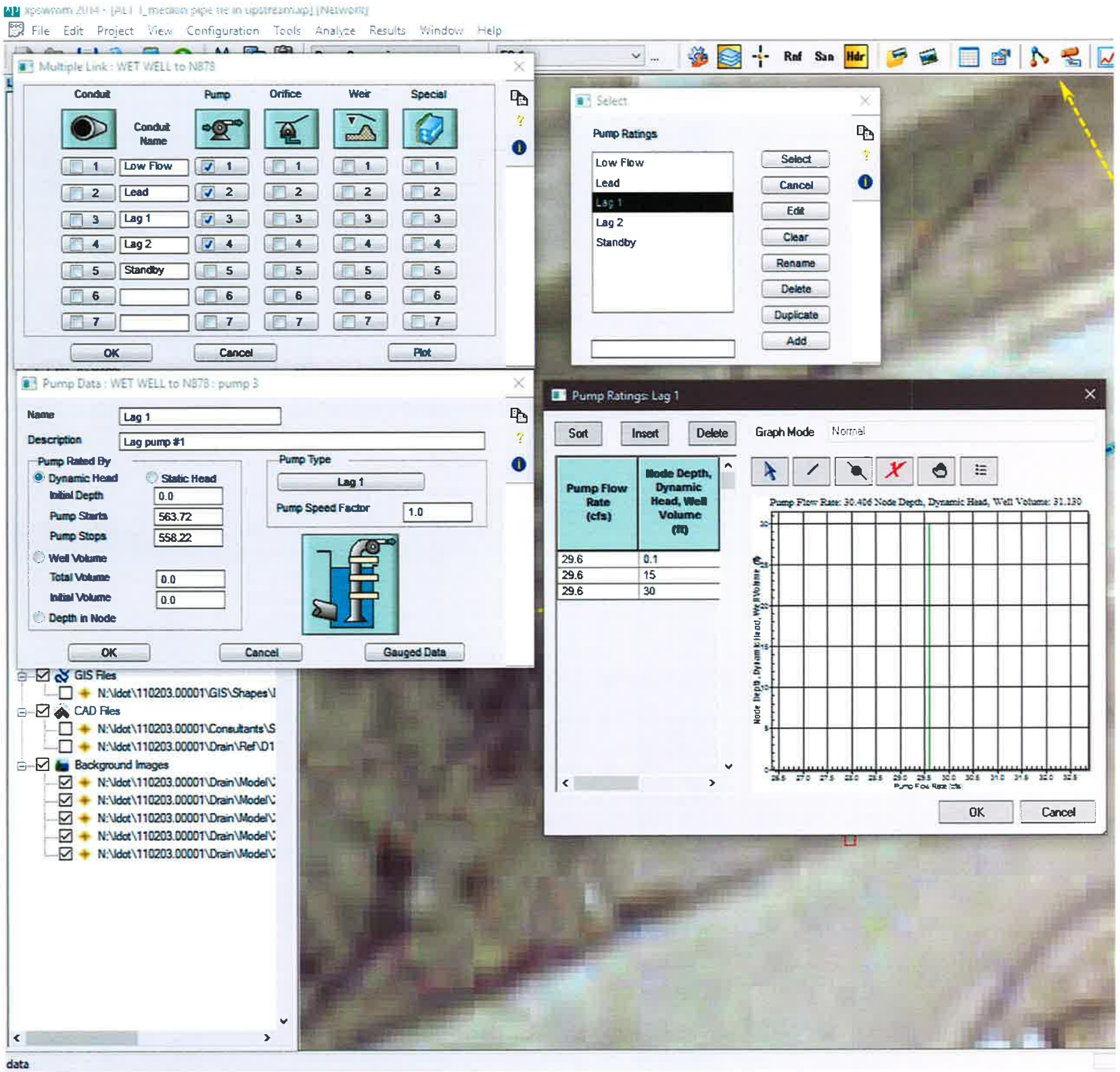


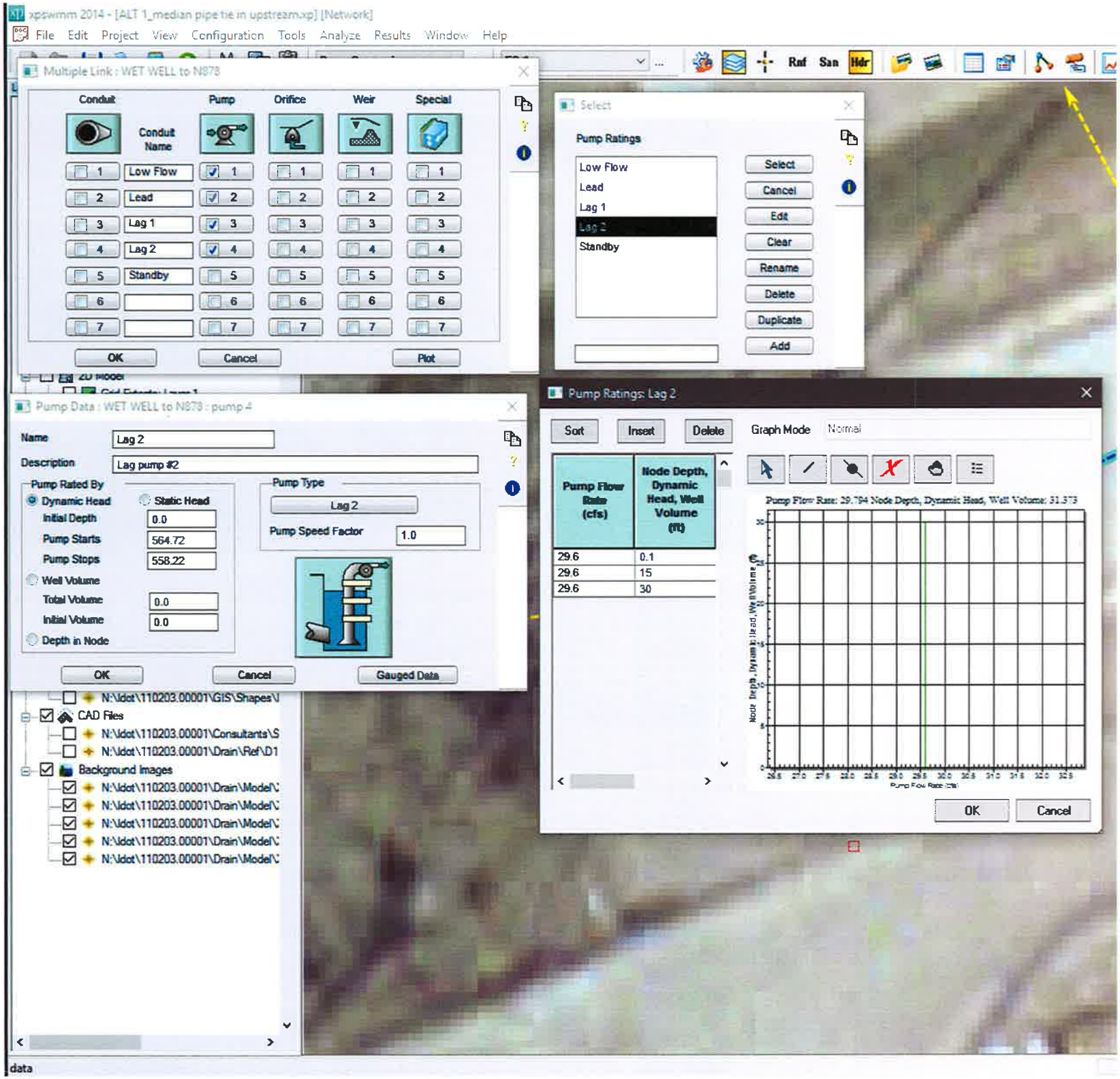
PROPOSED CONDITIONS RESULTS

PROPOSED PUMP INPUT


PROPOSED DYNAMIC - ALT A
File Edit Project View Configuration Tools Analyze Results Window Help
Multiple Link : WET WELL to N878
Conduit
Pump
Orifice
Weir
Special
Conduit Name
1 Low Flow
2 Lead
3 Lag 1
4 Lag 2
5 Standby
6
7
OK
Cancel
Plot
Select
Pump Ratings
Low Flow
Lead
Lag 1
Lag 2
Standby
Select
Cancel
Edit
Clear
Rename
Delete
Duplicate
Add
Pump Data : WET WELL to N878 : pump 1
Name
Low Flow
Description
Low flow pump
Pump Rated By
Dynamic Head
Static Head
Initial Depth
0.0
Pump Starts
558.22
Pump Stops
557.22
Well Volume
Total Volume
0.0
Initial Volume
0.0
Depth in Node
Pump Type
Low Flow
Pump Speed Factor
1.0
OK
Cancel
Gauged Data
Pump Ratings: Low Flow
Sort
Insert
Delete
Graph Mode
Normal
Pump Flow Rate (cfs)
Node Depth, Dynamic Head, Well Volume (ft)
6.0 0.1
6.0 15
6.0 30
Pump Flow Rate: 6.672 Node Depth, Dynamic Head, Well Volume: 10.944
OK
Cancel
Diagnostics
GIS Files
N:\ldot\110203.00001\GIS\Shapes\
CAD Files
N:\ldot\110203.00001\Consultants\S
N:\ldot\110203.00001\Drain\Ref\D1
Background Images
N:\ldot\110203.00001\Drain\Model\
N:\ldot\110203.00001\Drain\Model\
N:\ldot\110203.00001\Drain\Model\
N:\ldot\110203.00001\Drain\Model\
N:\ldot\110203.00001\Drain\Model\


xpswmm 2014 - [ALT 1_median pipe tie in upstream.xp] [Network]
File Edit Project View Configuration Tools Analyze Results Window Help
Multiple Link : WET WELL to N878
Conduit
Pump
Orifice
Weir
Special
Conduit Name
1 Low Flow
2 Lead
3 Lag 1
4 Lag 2
5 Standby
6
7
OK
Cancel
Plot
Select
Pump Ratings
Low Flow
Lead
Lag 1
Lag 2
Standby
Select
Cancel
Edit
Clear
Rename
Delete
Duplicate
Add
Pump Data : WET WELL to N878 : pump 2
Name
Lead
Description
Lead pump (low flow pump rate has been subtracted)
Pump Rated By
Dynamic Head
Static Head
Initial Depth
0.0
Pump Starts
562.72
Pump Stops
558.22
Well Volume
Total Volume
0.0
Initial Volume
0.0
Depth in Node
Pump Type
Lead
Pump Speed Factor
1.0
OK
Cancel
Gauged Data
Pump Ratings: Lead
Sort
Insert
Delete
Graph Mode
Normal
Pump Flow Rate (cfs)
Node Depth, Dynamic Head, Well Volume (ft)
23.6 0.1
23.6 15
23.6 30
Pump Flow Rate: 25.496 Node Depth, Dynamic Head, Well Volume: 31.130
OK
Cancel
N:\dot\110203.00001\GIS\Shapes\
CAD Files
N:\dot\110203.00001\Consultants\S
N:\dot\110203.00001\Drain\Ref\D1
Background Images
N:\dot\110203.00001\Drain\Model\
data


File Edit Project View Configuration Tools Analyze Results Window Help
Multiple Link : WET WELL to N878
Conduit
Pump
Orifice
Weir
Special
Conduit Name
1 Low Flow
2 Lead
3 Lag 1
4 Lag 2
5 Standby
6
7
OK
Cancel
Plot
Select
Pump Ratings
Low Flow
Lead
Lag 1
Lag 2
Standby
Select
Cancel
Edit
Clear
Rename
Delete
Duplicate
Add
Pump Data : WET WELL to N878 : pump 3
Name
Lag 1
Description
Lag pump #1
Pump Rated By
Dynamic Head
Static Head
Initial Depth
0.0
Pump Starts
563.72
Pump Stops
558.22
Well Volume
Total Volume
0.0
Initial Volume
0.0
Depth in Node
Pump Type
Lag 1
Pump Speed Factor
1.0
OK
Cancel
Gauged Data
Pump Ratings: Lag 1
Sort
Insert
Delete
Graph Mode
Normal
Pump Flow Rate (cfs)
Node Depth, Dynamic Head, Well Volume (ft)
29.6 0.1
29.6 15
29.6 30
Pump Flow Rate: 30.406 Node Depth, Dynamic Head, Well Volume: 31.130
OK
Cancel
GIS Files
N:\ldot\110203.00001\GIS\Shapes\I
CAD Files
N:\ldot\110203.00001\Consultants\S
N:\ldot\110203.00001\Drain\Ref\D1
Background Images
N:\ldot\110203.00001\Drain\Model\
data


xpswmm 2014 - [ALT 1_median pipe tie in upstream.xp] [Network]
File Edit Project View Configuration Tools Analyze Results Window Help
Multiple Link : WET WELL to N878
Conduit
Pump
Orifice
Weir
Special
Conduit Name
1 Low Flow
2 Lead
3 Lag 1
4 Lag 2
5 Standby
6
7
OK
Cancel
Plot
Select
Pump Ratings
Low Flow
Lead
Lag 1
Lag 2
Standby
Select
Cancel
Edit
Clear
Rename
Delete
Duplicate
Add
Pump Data : WET WELL to N878 : pump 4
Name
Lag 2
Description
Lag pump #2
Pump Rated By
Dynamic Head
Static Head
Initial Depth
0.0
Pump Starts
564.72
Pump Stops
558.22
Well Volume
Total Volume
0.0
Initial Volume
0.0
Depth in Node
Pump Type
Lag 2
Pump Speed Factor
1.0
OK
Cancel
Gauged Data
Pump Ratings: Lag 2
Sort
Insert
Delete
Graph Mode
Normal
Pump Flow Rate (cfs)
Node Depth, Dynamic Head, Well Volume (ft)
29.6 0.1
29.6 15
29.6 30
Pump Flow Rate: 29.794 Node Depth, Dynamic Head, Well Volume: 31.373
OK
Cancel
N:\ldot\110203.00001\GIS\Shapes\
CAD Files
N:\ldot\110203.00001\Consultants\S
N:\ldot\110203.00001\Drain\Ref\D1
Background Images
N:\ldot\110203.00001\Drain\Model\
data

PROPOSED ALTERNATIVE A

PROPOSED CONDITIONS ALT A SCHEMATIC

xpswmm 2014 - [ALT 1_median pipe tie in upstream_2x2_upsize.xp] [Network]

File Edit Project View Configuration Tools Analyze Results Window Help

Base Scenario | 100-1 | Rnf San Hdr

XPSWMM NODE

XPSWMM LINK

OVERLAND FLOW

OUT2
N916
N920
N914
N915
N918
N919
N839
N840
N841
N853
N842
N856
N857
N843
N855
N854
N913
N859
N860
N844
N858

X=1151607.85 Y=1879102.79 HDR 1:1525.365 NUM OVR

xpswmm 2014 - [ALT 1_median pipe tie in upstream_2x2_upsize.xp] [Network]

File Edit Project View Configuration Tools Analyze Results Window Help

Base Scenario | 100-1 | Rnf San Hdr

XPSWMM NODE

XPSWMM LINK

OVERLAND FLOW

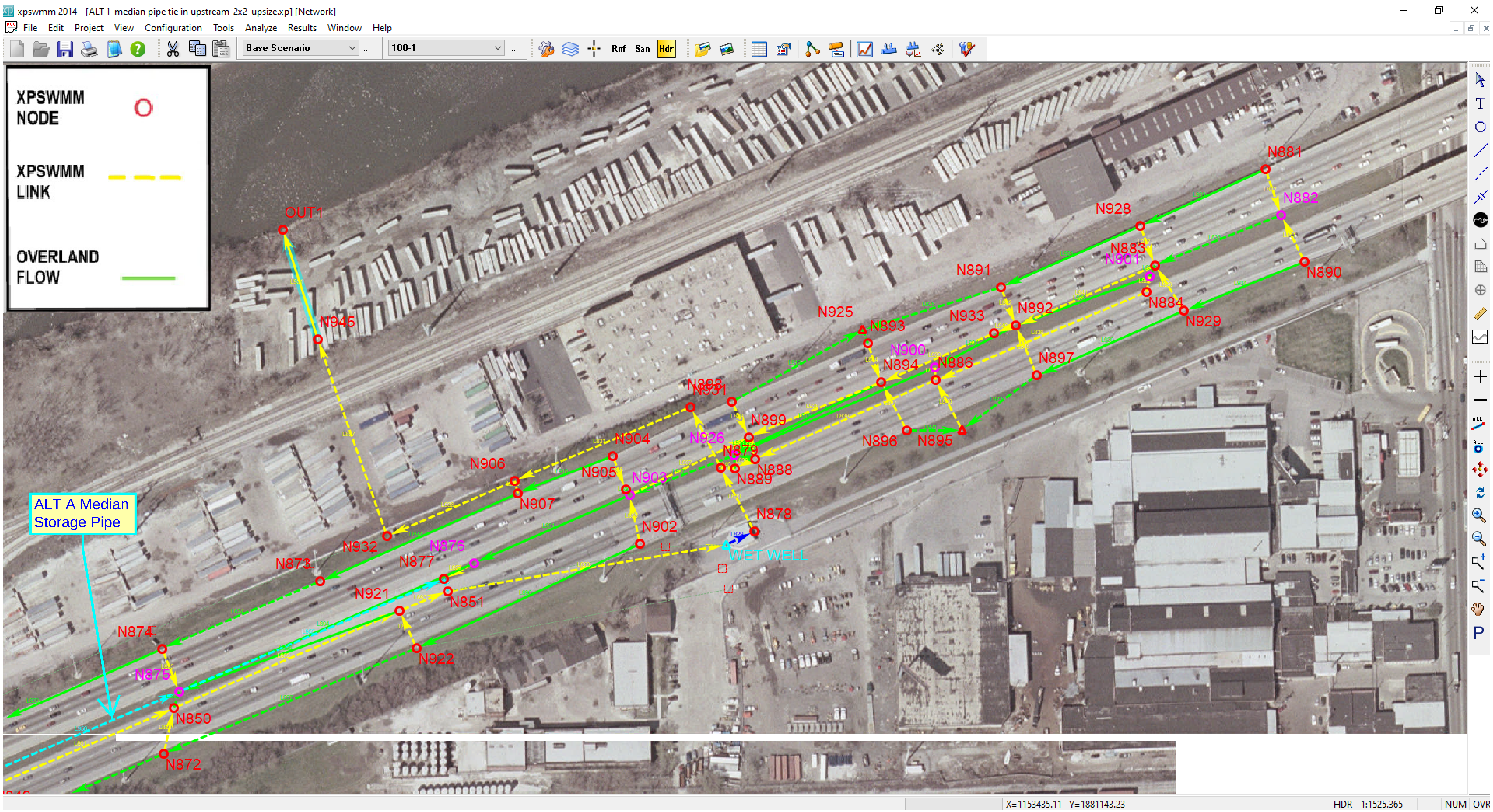
ALT A Median Storage Pipe

N867 LOW EOP

SAG

N921 N874 N875 N850 N872 N908 N949 N909 N870 N849 N871 N923 N867 N911 N910 N848 N924 N847 N864 N865 N846 N869 N861 N862 N845 N866 N859 N860 N844 N863 N858

X=1151983.90 Y=1880216.36 HDR 1:1525.365 NUM OVR


xpswmm 2014 - [ALT 1_median pipe tie in upstream_2x2_upsize.xp] [Network]
File Edit Project View Configuration Tools Analyze Results Window Help
Base Scenario
100-1
Rnf San Hdr
XPSWMM NODE
XPSWMM LINK
OVERLAND FLOW
ALT A Median Storage Pipe
OUT1
N945
N881
N882
N928
N883
N901
N890
N891
N884
N929
N925
N893
N933
N892
N900
N894
N886
N897
N898
N931
N899
N926
N879
N896
N895
N904
N906
N905
N903
N888
N889
N907
N878
N902
WET WELL
N932
N876
N873
N877
N921
N851
N874
N922
N875
N850
N872
X=1153435.11 Y=1881143.23
HDR 1:1525.365
NUM OVR

LINK DATA

Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
L875	50-30min	1.000	588.610	592.800	500.000	593.800	N856	N839	589.610
n839 ss	50-30min	1.500	583.460	587.600	77.000	589.100	N840	N839	584.960
L876	50-30min	2.000	587.460	591.410	500.000	593.410	N857	N840	589.460
n840 ss	50-30min	1.500	583.010	583.210	24.000	584.710	N841	N840	584.510
n840 ol1	50-30min	1.000	593.210	591.410	24.000	592.410	N841	N840	594.210
n841 ss	50-30min	2.000	581.880	582.710	200.000	584.710	N842	N841	583.880
n842 ss	50-30min	3.000	580.610	581.130	298.000	584.130	N843	N842	583.610
n843 ss	50-30min	3.000	576.790	577.660	398.000	580.660	N844	N843	579.790
n844 ss	50-30min	3.000	573.340	573.940	386.000	576.940	N845	N844	576.340
n845 ss	50-30min	3.500	565.530	565.790	414.000	569.290	N846	N845	569.030
n846 ss	50-30min	4.000	564.270	565.330	260.000	569.330	N847	N846	568.270
n847 ss	50-30min	4.500	563.715	564.170	186.000	568.670	N910	N847	568.215
n848 ss	50-30min	4.500	563.320	563.520	266.000	568.020	N870	N848	567.820
n849 ss	50-30min	5.000	562.370	563.060	335.000	568.060	N850	N849	567.370
n849ss2	50-30min	7.000	568.067	568.087	20.000	575.087	N949	N849	575.067
n850 ss	50-30min	5.000	562.112	562.370	422.000	567.370	N921	N850	567.112
n851 ss	50-30min	5.000	561.170	562.060	483.000	567.060	WET WELL	N851	566.170
n851 ss2	50-30min	3.000	566.803	567.188	385.000	570.188	N947	N851	569.803
Low Flow	50-30min						N878	WET WELL	
Lead	50-30min						N878	WET WELL	
Lag 1	50-30min						N878	WET WELL	
Lag 2	50-30min						N878	WET WELL	
L877	50-30min	1.000	588.870	592.500	480.000	593.500	N855	N853	589.870
n853 ss	50-30min	1.500	583.010	584.440	65.000	585.940	N841	N853	584.510
n854 ss	50-30min	1.250	581.220	583.010	36.000	584.260	N855	N854	582.470
n854 ol1	50-30min	1.000	588.870	586.260	36.000	587.260	N855	N854	589.870
L880	50-30min	1.000	587.000	588.870	418.000	589.870	N858	N855	588.000
n855 ss	50-30min	1.250	578.260	579.470	61.000	580.720	N843	N855	579.510
L878	50-30min	1.000	586.320	588.610	312.000	589.610	N913	N856	587.320
n856 ss	50-30min	1.250	580.760	585.110	75.000	586.360	N857	N856	582.010
L879	50-30min	2.000	583.860	587.460	395.000	589.460	N860	N857	585.860
n857 ss	50-30min	1.500	579.010	579.410	23.000	580.910	N843	N857	580.510
n857 ol1	50-30min	1.000	589.160	587.460	23.000	588.460	N843	N857	590.160

LINK DATA

Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
L884	50-30min	1.000	585.940	587.000	380.000	588.000	N863	N858	586.940
n858 ss	50-30min	1.500	574.340	576.000	85.000	577.500	N844	N858	575.840
L882	50-30min	1.000	582.260	585.940	404.000	586.940	N861	N859	583.260
n859 ss	50-30min	1.000	578.260	578.440	76.000	579.440	N860	N859	579.260
L883	50-30min	2.000	581.420	583.860	390.000	585.860	N862	N860	583.420
n860 ss	50-30min	1.750	574.090	574.610	25.000	576.360	N844	N860	575.840
n860 ol1	50-30min	1.000	586.090	583.860	25.000	584.860	N844	N860	587.090
L885	50-30min	1.000	579.030	582.260	415.000	583.260	N864	N861	580.030
n861 ss	50-30min	1.250	575.370	578.060	88.000	579.310	N862	N861	576.620
L886	50-30min	2.000	578.520	581.420	420.000	583.420	N865	N862	580.520
n862 ss	50-30min	1.500	566.600	567.320	23.000	568.820	N845	N862	568.100
n862 ol1	50-30min	1.000	583.140	581.420	22.000	582.420	N845	N862	584.140
L887	50-30min	1.000	581.520	585.940	425.000	586.940	N866	N863	582.520
n863 ss	50-30min	1.250	567.000	568.950	75.000	570.200	N845	N863	568.250
L888	50-30min	1.000	577.310	579.030	264.000	580.030	N867	N864	578.310
n864 ss	50-30min	1.000	572.370	575.220	80.000	576.220	N865	N864	573.370
L889	50-30min	2.000	576.690	578.520	264.000	580.520	SAG	N865	578.690
n865 ss	50-30min	1.500	565.800	566.620	22.000	568.120	N846	N865	567.300
n865 ol1	50-30min	1.000	579.680	578.520	22.000	579.520	N846	N865	580.680
L890	50-30min	1.000	577.400	581.520	260.000	582.520	N869	N866	578.400
n866 ss	50-30min	1.500	565.430	567.420	69.000	568.920	N846	N866	566.930
n867 ss	50-30min	1.250	571.140	572.710	78.000	573.960	SAG	N867	572.390
867 weir	50-30min						SAG	N867	
n868 ss	50-30min	1.500	564.270	565.840	27.000	567.340	N847	SAG	565.770
n868 ol1	50-30min	1.000	578.270	576.690	26.000	577.690	N847	SAG	579.270
n869 ss	50-30min	1.500	564.270	566.420	64.000	567.920	N847	N869	565.770
n870 ss	50-30min	4.500	563.210	563.320	157.000	567.820	N849	N870	567.710
n871 ss	50-30min	1.000	563.900	576.130	330.000	577.130	N870	N871	564.900
401.1	50-30min	1.000	578.890	582.640	320.000	583.640	N924	N871	579.890
n872 ss	50-30min	1.000	562.640	581.560	82.000	582.560	N850	N872	563.640
396.1	50-30min	1.000	582.640	587.790	450.000	588.790	N871	N872	583.640
n873 ss	50-30min	1.000	583.010	587.040	296.000	588.040	N874	N873	584.010
n873 ol	50-30min	1.000	587.790	591.870	287.000	592.870	N874	N873	588.790

LINK DATA

Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
L899	50-30min	1.000	582.650	587.790	475.000	588.790	N908	N874	583.650
n874 ss	50-30min	1.250	579.210	582.980	71.000	584.230	N875	N874	580.460
n875 ss	50-30min	2.000	562.640	563.710	28.000	565.710	N850	N875	564.640
n875 ol1	50-30min	1.000	588.640	585.210	27.000	586.210	N850	N875	589.640
median ss	50-30min	7.000	567.223	567.715	492.000	574.715	N877	N875	574.223
L894	50-30min	1.000	585.210	594.500	545.000	595.500	N875	N876	586.210
n876 ss	50-30min	1.000	590.370	592.060	57.000	593.060	N877	N876	591.370
n877 ss	50-30min	7.000	567.200	567.223	23.000	574.223	N851	N877	574.200
n878 ss	50-30min	4.500	585.150	585.470	123.000	589.970	N879	N878	589.650
n879ss2	50-30min	4.500	584.860	585.150	120.000	589.650	N931	N879	589.360
L933	50-30min	1.000	609.380	611.580	230.000	612.580	N928	N881	610.380
n881 ss	50-30min	1.000	606.530	606.480	87.000	607.480	N882	N881	607.530
n882 ss	50-30min	1.000	603.090	606.080	230.000	607.080	N883	N882	604.090
n882 ol	50-30min	3.000	608.510	610.780	230.000	613.780	N883	N882	611.510
n883 ol	50-30min	3.000	606.610	608.510	17.000	611.510	N901	N883	609.610
n901 ss2	50-30min	1.500	600.640	602.960	258.000	604.460	N892	N883	602.140
n885 ss	50-30min	2.000	588.210	590.190	390.000	592.190	N886	N884	590.210
n887 ss	50-30min	2.000	586.840	588.170	325.000	590.170	N888	N886	588.840
L915	50-30min	1.000	597.740	601.200	35.000	602.200	N926	N888	598.740
n888 ss	50-30min	3.000	586.610	586.840	38.000	589.840	N889	N888	589.610
n889 ss	50-30min	3.000	586.000	586.510	23.000	589.510	N879	N889	589.000
L934	50-30min	1.000	609.740	611.910	220.000	612.910	N929	N890	610.740
n890 ss	50-30min	1.000	605.980	606.860	88.000	607.860	N882	N890	606.980
n891 ss	50-30min	1.000	600.840	601.180	78.000	602.180	N892	N891	601.840
n891 weir	50-30min						N925	N891	
L924	50-30min	3.000	602.090	605.190	150.000	608.190	N900	N892	605.090
n892 ss2	50-30min	2.000	599.390	599.340	21.000	601.340	N933	N892	601.390
n893 ss	50-30min	1.000	589.180	598.500	78.000	599.500	N894	N893	590.180
L918	50-30min	2.000	597.740	602.680	280.000	604.680	N926	N894	599.740
n894 ss2	50-30min	4.500	586.920	587.380	246.000	591.880	N899	N894	591.420
n895 ss	50-30min	1.250	589.510	589.940	96.000	591.190	N886	N895	590.760
n896 ss	50-30min	1.000	589.910	598.640	87.000	599.640	N894	N896	590.910
N896 weir	50-30min						N895	N896	

LINK DATA

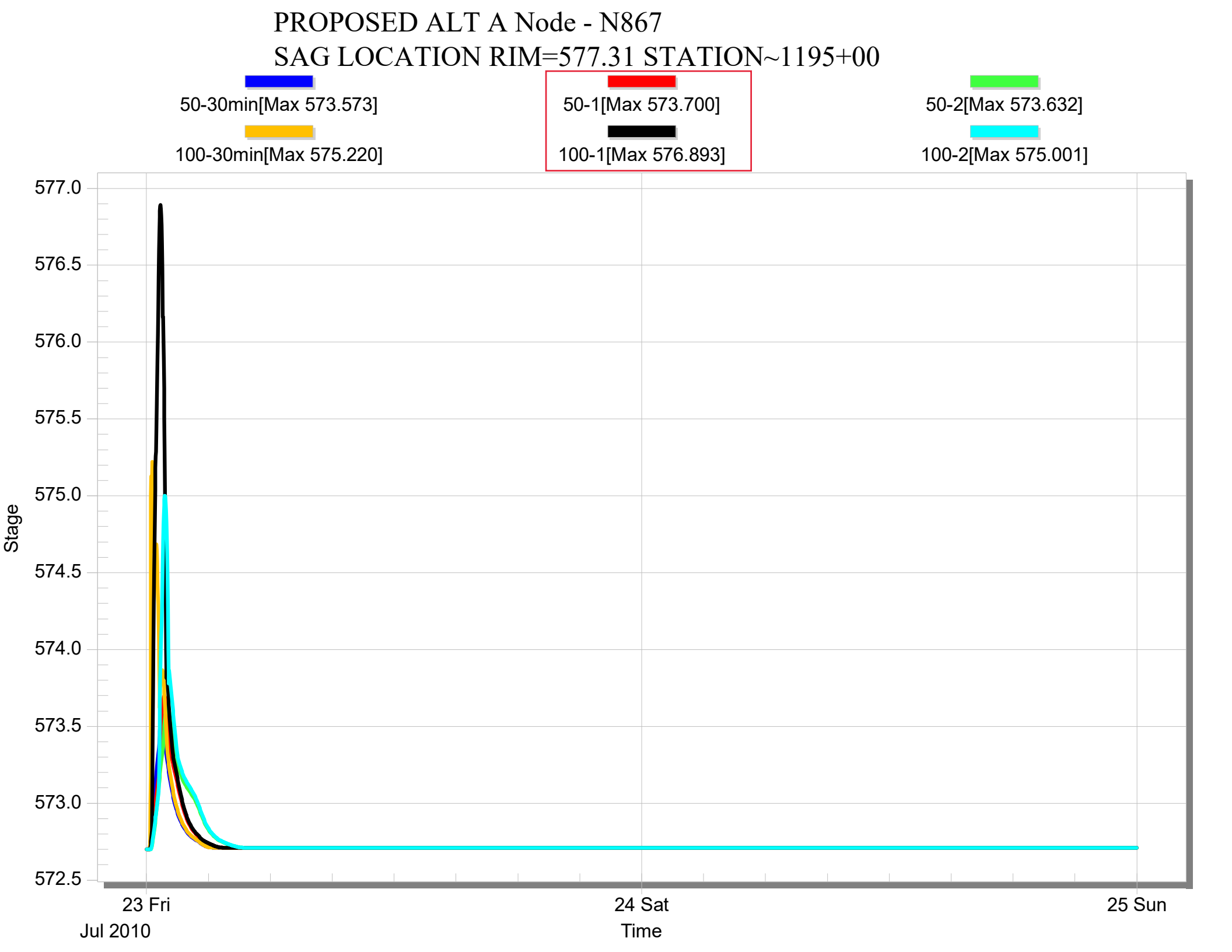
Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
n897 ss	50-30min	1.000	600.590	601.690	84.000	602.690	N892	N897	601.590
N897 weir	50-30min						N895	N897	
n898 ss	50-30min	1.000	590.720	595.400	75.000	596.400	N899	N898	591.720
n898 weir	50-30min						N925	N898	
L914	50-30min	1.000	597.740	601.160	40.000	602.160	N926	N899	598.740
n899 ss	50-30min	4.500	586.880	586.910	28.000	591.410	N888	N899	591.380
L923	50-30min	3.000	597.740	602.090	372.000	605.090	N926	N900	600.740
n900 ss	50-30min	1.500	589.460	589.380	23.000	590.880	N886	N900	590.960
L926	50-30min	3.000	605.440	606.610	242.000	609.610	N892	N901	608.440
n901 ss	50-30min	2.000	590.620	590.510	28.000	592.510	N884	N901	592.620
L896	50-30min	3.000	591.450	597.980	420.000	600.980	N922	N902	594.450
n902 ss	50-30min	1.000	592.100	592.980	84.000	593.980	N903	N902	593.100
L891	50-30min	3.000	592.060	596.900	293.000	599.900	N876	N903	595.060
n903 ss3	50-30min	1.500	590.070	591.650	222.000	593.150	N899	N903	591.570
L910	50-30min	1.000	595.290	598.030	207.000	599.030	N907	N904	596.290
n904 ss	50-30min	1.000	593.040	593.130	61.000	594.130	N905	N904	594.040
n905 ss	50-30min	1.000	592.000	593.040	11.000	594.040	N903	N905	593.000
n905 ol1	50-30min	1.000	596.900	598.740	11.000	599.740	N903	N905	597.900
n906 ss2	50-30min	4.500	584.350	584.541	208.000	589.041	N932	N906	588.850
L892	50-30min	1.000	591.870	595.490	335.000	596.490	N873	N907	592.870
n907 ss	50-30min	1.000	592.000	592.840	30.000	593.840	N906	N907	593.000
L906	50-30min	1.000	578.020	582.650	475.000	583.650	N923	N908	579.020
n908 ss	50-30min	1.000	576.770	578.170	90.000	579.170	N909	N908	577.770
L905	50-30min	2.000	577.310	580.620	370.000	582.620	N911	N909	579.310
n909 ss	50-30min	1.000	576.000	576.770	37.000	577.770	N870	N909	577.000
n909 ol1	50-30min	1.000	583.000	580.620	35.000	581.620	N870	N909	584.000
n909 ss2	50-30min	7.000	568.070	568.190	126.000	575.190	N949	N909	575.070
n910 ss	50-30min	4.500	563.520	563.715	80.000	568.215	N848	N910	568.020
L908	50-30min	2.000	576.690	577.310	191.000	579.310	SAG	N911	578.690
n911 ss	50-30min	1.000	572.000	572.660	21.000	573.660	N910	N911	573.000
n911 ol1	50-30min	1.000	578.500	577.310	22.000	578.310	N910	N911	579.500
L881	50-30min	1.000	585.940	586.320	66.000	587.320	N859	N913	586.940
n913 ss	50-30min	1.000	578.260	582.960	125.000	583.960	N860	N913	579.260

LINK DATA

Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
L871	50-30min	1.000	597.410	600.240	325.000	601.240	N920	N914	598.410
n914 ss	50-30min	3.000	583.350	584.390	335.000	587.390	N915	N914	586.350
L874	50-30min	2.000	591.410	596.000	605.000	598.000	N840	N915	593.410
n915 ss	50-30min	3.000	582.958	583.350	147.000	586.350	N916	N915	585.958
n918 ss	50-30min	6.000	578.500	580.000	300.000	586.000	OUT2	N916	584.500
n918 ol	50-30min	2.000	596.325	600.980	629.000	602.980	N915	N918	598.325
918 ss	50-30min	1.000	591.901	596.430	629.000	597.430	N915	N918	592.901
L872	50-30min	1.000	590.990	597.940	750.000	598.940	N853	N919	591.990
n919 ss	50-30min	3.000	582.958	583.940	388.000	586.940	N916	N919	585.958
L873	50-30min	1.000	592.800	597.410	575.000	598.410	N839	N920	593.800
n920 ss	50-30min	1.000	590.000	592.510	80.000	593.510	N915	N920	591.000
L898	50-30min	1.000	585.210	594.500	422.000	595.500	N875	N921	586.210
n921 ss	50-30min	5.000	562.060	562.112	86.000	567.112	N851	N921	567.060
n921 ol	50-30min	1.000	594.560	593.500	86.000	594.500	N851	N921	595.560
L952	50-30min	3.000	561.462	564.170	500.000	567.170	N946	N922	564.462
n922 ss	50-30min	1.000	584.170	589.150	127.000	590.150	N921	N922	585.170
392.1	50-30min	1.000	587.790	592.500	385.000	593.500	N872	N922	588.790
L909	50-30min	1.000	577.310	578.020	100.000	579.020	N867	N923	578.310
n923 ss	50-30min	1.000	573.000	575.010	127.000	576.010	N910	N923	574.000
n924 ss	50-30min	1.000	572.000	573.460	56.000	574.460	N910	N924	573.000
404.1	50-30min	1.000	577.400	578.890	210.000	579.890	N869	N924	578.400
n893 ol	50-30min	1.000	603.440	597.000	50.000	598.000	N893	N925	604.440
n926 ss	50-30min	1.500	588.110	588.090	22.000	589.590	N889	N926	589.610
n926 ol1	50-30min	1.000	600.910	597.740	22.000	598.740	N889	N926	601.910
n903 ol	50-30min	2.000	596.900	597.740	190.000	599.740	N903	N926	598.900
L929	50-30min	1.000	606.300	609.380	260.000	610.380	N891	N928	607.300
n928 ss	50-30min	1.000	603.950	605.340	80.000	606.340	N883	N928	604.950
L930	50-30min	1.000	606.490	609.740	275.000	610.740	N897	N929	607.490
n929 ss	50-30min	1.000	603.310	604.690	87.000	605.690	N883	N929	604.310
n879 ss	50-30min	4.500	584.350	584.860	348.000	589.360	N906	N931	588.850
n906 ss	50-30min	4.500	583.720	584.350	255.000	588.850	N945	N932	588.220
n933 ss	50-30min	4.500	587.380	587.390	230.000	591.890	N894	N933	591.880
n931 ss	50-30min	1.500	589.366	589.974	320.000	591.474	N101	N100	590.866

LINK DATA

Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
n932 ss	50-30min	1.500	588.477	589.366	468.000	590.866	N102	N101	589.977
n933 ss.1	50-30min	2.000	587.688	588.477	415.000	590.477	N103	N102	589.688
n934 ss	50-30min	3.000	587.175	587.688	270.000	590.688	N104	N103	590.175
n935 ss	50-30min	3.000	587.033	587.175	75.000	590.175	N105	N104	590.033
n936 ss	50-30min	3.000	586.083	587.033	500.000	590.033	N106	N105	589.083
n937 ss	50-30min	3.000	585.203	586.083	463.000	589.083	N107	N106	588.203
n938 ss	50-30min	3.000	584.646	585.203	293.000	588.203	N108	N107	587.646
n939 ss	50-30min	3.000	584.350	584.646	156.040	587.646	N932	N108	587.350
L951	50-30min	4.500	576.980	583.720	137.000	588.220	OUT1	N945	581.480
n947 ss2	50-30min	3.000	561.170	561.270	100.000	564.270	WET WELL	N947	564.170
n849 ss2	50-30min	7.000	567.715	568.067	352.000	575.067	N875	N949	574.715


PROPOSED ALT A Node - N867
SAG LOCATION RIM=577.31 STATION~1195+00
50-30min[Max 573.573]
50-1[Max 573.700]
50-2[Max 573.632]
100-30min[Max 575.220]
100-1[Max 576.893]
100-2[Max 575.001]
577.0
576.5
576.0
575.5
575.0
574.5
574.0
573.5
573.0
572.5
Stage
23 Fri
Jul 2010
24 Sat
Time
25 Sun

PROPOSED DYNAMIC
ALTERNATIVE A
MAIN DRAIN 50-YEAR

xpswmm 2014 - [Dynamic Long Section]

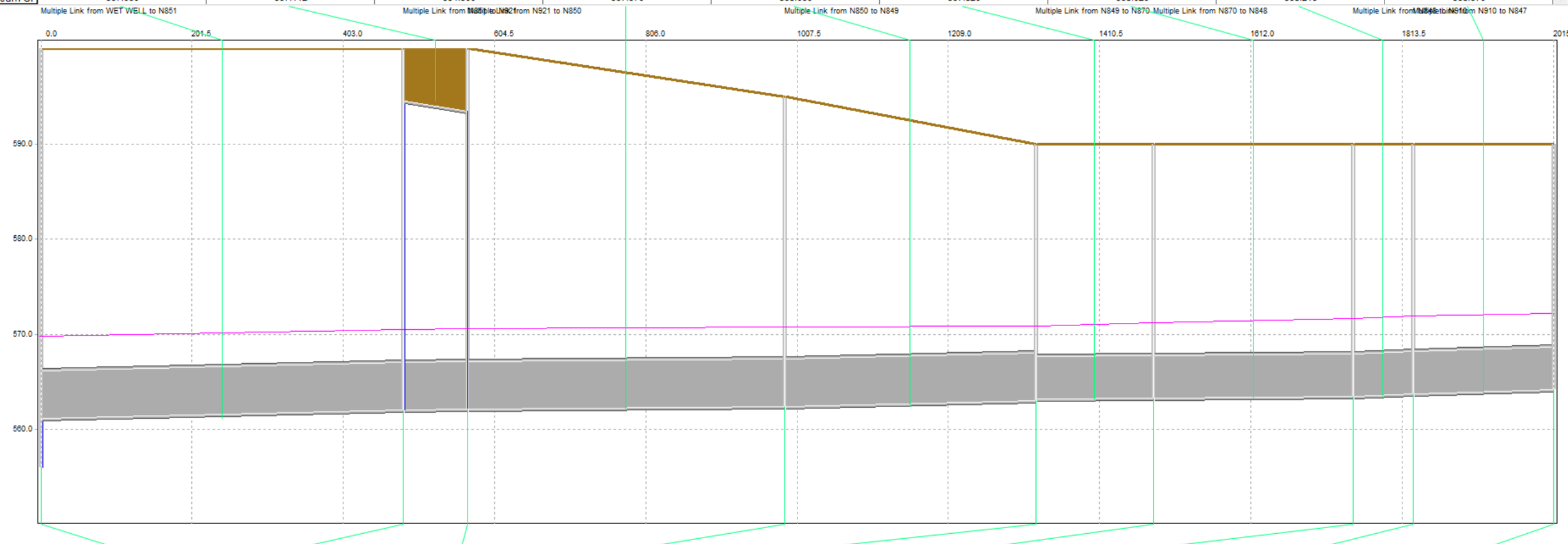
File View Window

Base Scenario | 50-1 | Active Subca

Finalist Alternative A
Day [83695]

LINK DATA

	n851 ss	n921 ss	n921 ol	n850 ss	n849 ss	n870 ss	n848 ss	n910 ss	n847 ss
Storm	50-1	50-1	50-1	50-1	50-1	50-1	50-1	50-1	50-1
Diameter (He	5.000	5.000	1.000	5.000	5.000	4.500	4.500	4.500	4.500
Downstream	561.170	562.060	594.560	562.112	562.370	563.210	563.320	563.520	563.715
Upstream Inv	562.060	562.112	593.500	562.370	563.060	563.320	563.520	563.715	564.170
Length	483.000	86.000	86.000	422.000	335.000	157.000	266.000	80.000	186.000
Upstream Cr	567.060	567.112	594.500	567.370	568.060	567.820	568.020	568.215	568.670



	WET WELL	N851	N921	N850	N849	N870	N848	N910	N847
Storm	50-1	50-1	50-1	50-1	50-1	50-1	50-1	50-1	50-1
Max Water El	569.824	570.532	570.630	570.776	570.896	571.245	571.649	571.934	572.239

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

PROPOSED DYNAMIC ALTERNATIVE A STORAGE PIPE 50-YEAR

xpswmm 2014 - [Dynamic Long Section]

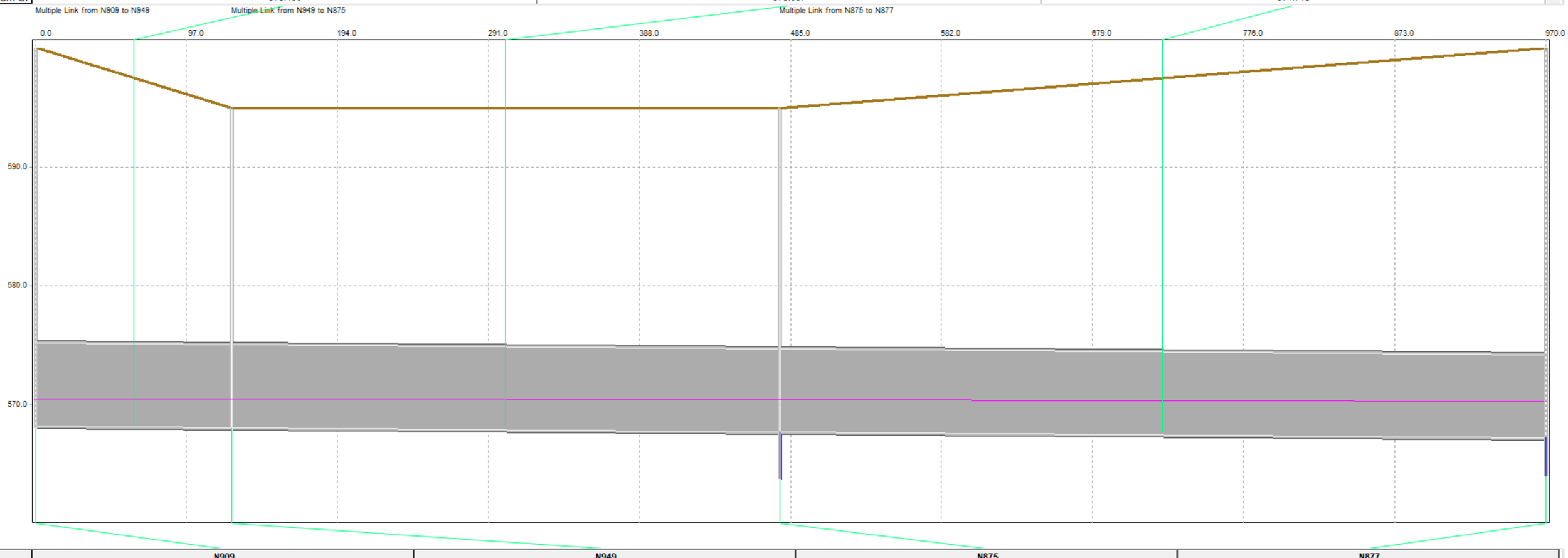
File View Window

Base Scenario | 50-30min | Active Subcatchments | Close

Finalist Alternative A
Day [65164]

LINK DATA

	n909 ss2	n849 ss2	median ss
Storm	50-30min	50-30min	50-30min
Diameter (He	7.000	7.000	7.000
Downstream	568.070	567.715	567.223
Upstream Inv	568.190	568.067	567.715
Length	126.000	352.000	492.000
Upstream Cr	575.190	575.067	574.715



	N909	N949	N875	N877
Storm	50-30min	50-30min	50-30min	50-30min
Max Water El	570.514	570.498	570.415	570.250

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

PROPOSED DYNAMIC ALTERNATIVE A OUTFALL 50-YEAR

xpswmm 2014 - [Dynamic Long Section]

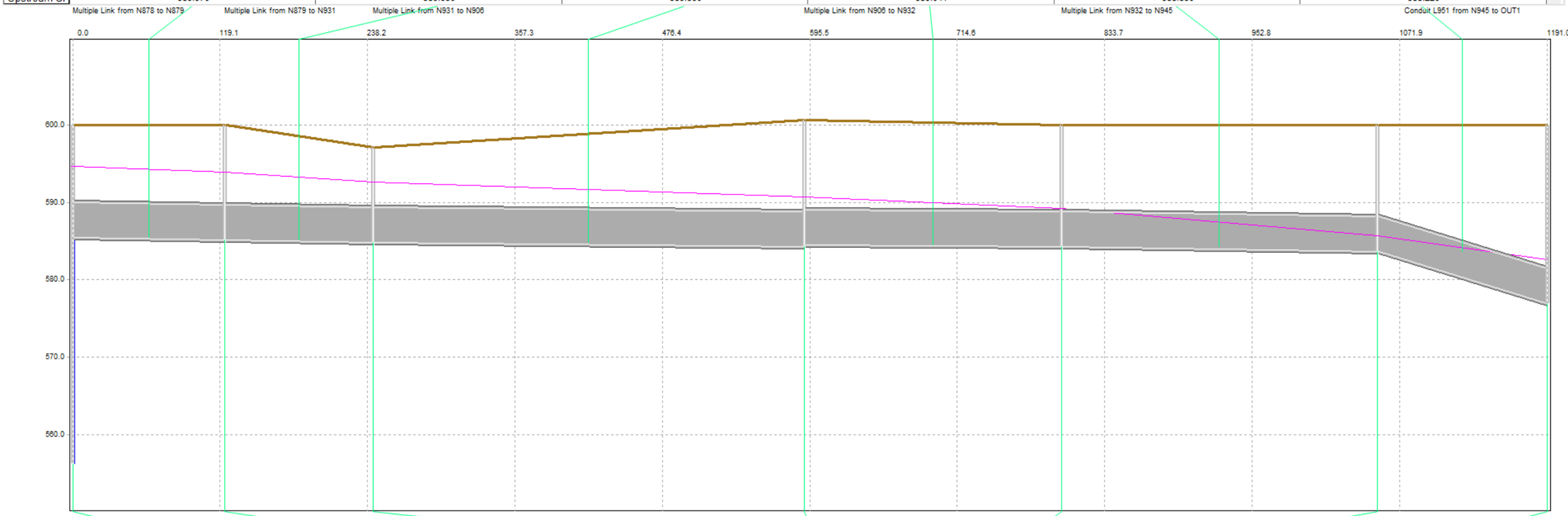
File View Window

Base Scenario | 50-30min | Active Subcatchments | Close

Finalist Alternative A
Day [0]

LINK DATA

	n878 ss	n879ss2	n879 ss	n906 ss2	n906 ss	L951
Storm	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min
Diameter (He	4.500	4.500	4.500	4.500	4.500	4.500
Downstream	585.150	584.860	584.350	584.350	583.720	576.980
Upstream Inv	585.470	585.150	584.860	584.541	584.350	583.720
Length	123.000	120.000	348.000	208.000	255.000	137.000
Upstream Cr	589.970	589.650	589.360	589.041	588.850	588.220



	N878	N879	N931	N906	N932	N945	OUT1
Storm	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min
Max Water El	594.645	593.918	592.695	590.693	589.233	585.704	582.570

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

PROPOSED DYNAMIC
ALTERNATIVE A
MAIN DRAIN 100-YEAR

xpswmm 2014 - [Dynamic Long Section]

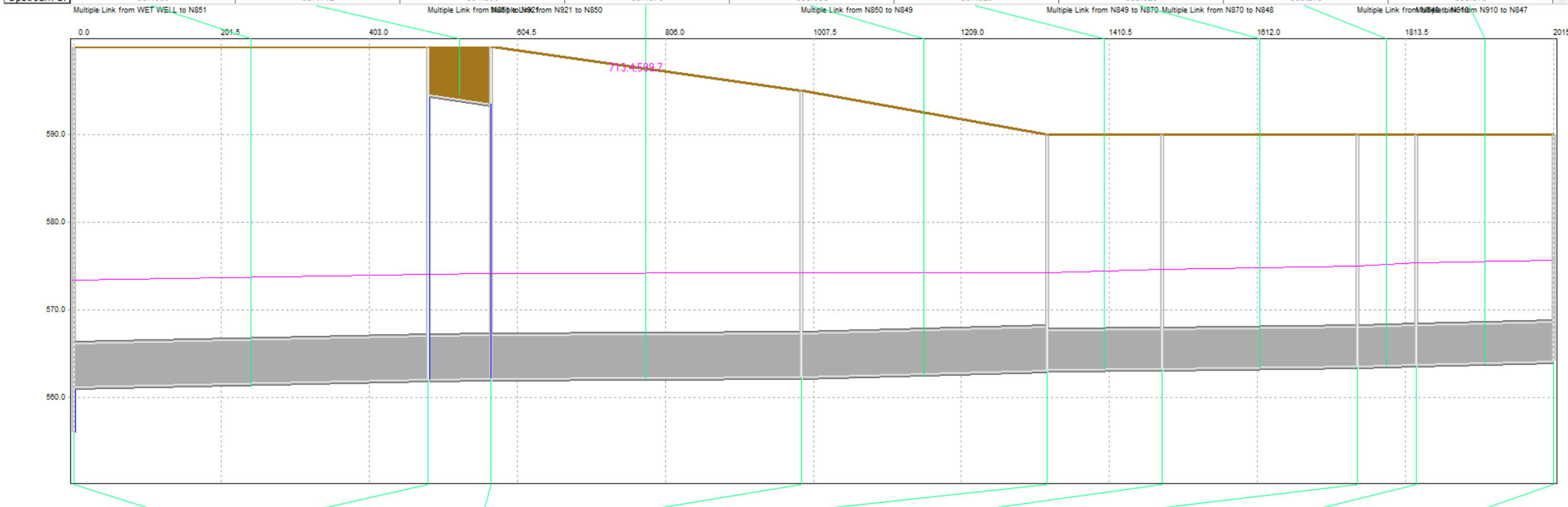
File View Window

Base Scenario | 100-1 | Active Subcatchments | Close

Finalist Alternative A
Day [83695]

LINK DATA

	n851 ss	n921 ss	n921 ol	n850 ss	n849 ss	n870 ss	n848 ss	n910 ss	n847 ss
Storm	100-1	100-1	100-1	100-1	100-1	100-1	100-1	100-1	100-1
Diameter (He	5.000	5.000	1.000	5.000	5.000	4.500	4.500	4.500	4.500
Downstream	561.170	562.060	594.560	562.112	562.370	563.210	563.320	563.520	563.715
Upstream Inv	562.060	562.112	593.500	562.370	563.060	563.320	563.520	563.715	564.170
Length	483.000	86.000	86.000	422.000	335.000	157.000	266.000	80.000	186.000
Upstream Cr	567.060	567.112	594.500	567.370	568.060	567.820	568.020	568.215	568.670



	WET WELL	N851	N921	N850	N849	N870	N848	N910	N847
Storm	100-1	100-1	100-1	100-1	100-1	100-1	100-1	100-1	100-1
Max Water El	573.394	574.097	574.138	574.197	574.241	574.610	575.035	575.344	575.625

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

PROPOSED DYNAMIC ALTERNATIVE A STORAGE PIPE 100-YEAR

xpswmm 2014 - [Dynamic Long Section]

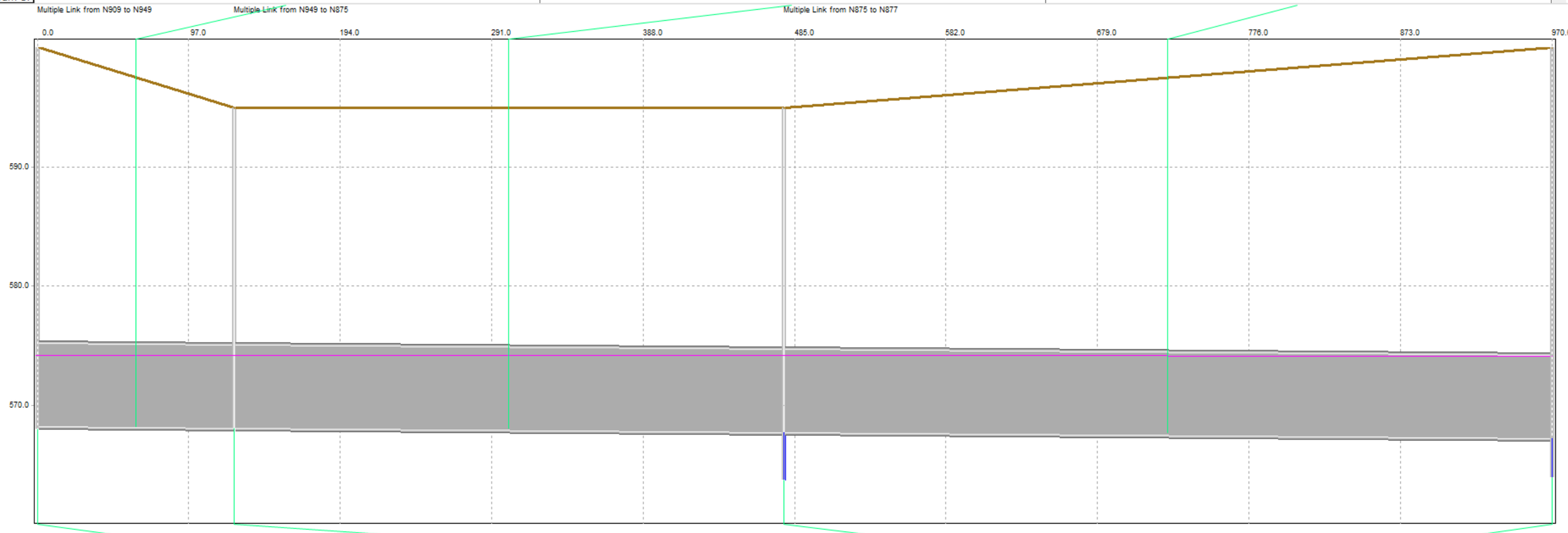
File View Window

Base Scenario | 100-1 | Active Subcatchments | Close

Finalist Alternative A
Day [196745]

LINK DATA

	n909 ss2	n849 ss2	median ss
Storm	100-1	100-1	100-1
Diameter (He	7.000	7.000	7.000
Downstream	568.070	567.715	567.223
Upstream Inv	568.190	568.067	567.715
Length	126.000	352.000	492.000
Upstream Cr	575.190	575.067	574.715



	N909	N949	N875	N877
Storm	100-1	100-1	100-1	100-1
Max Water El	574.221	574.221	574.192	574.137

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

PROPOSED DYNAMIC ALTERNATIVE A OUTFALL 100-YEAR

xpswmm 2014 - [Dynamic Long Section]

File View Window

Base Scenario | 100-1 | Active Subcatchments | Close

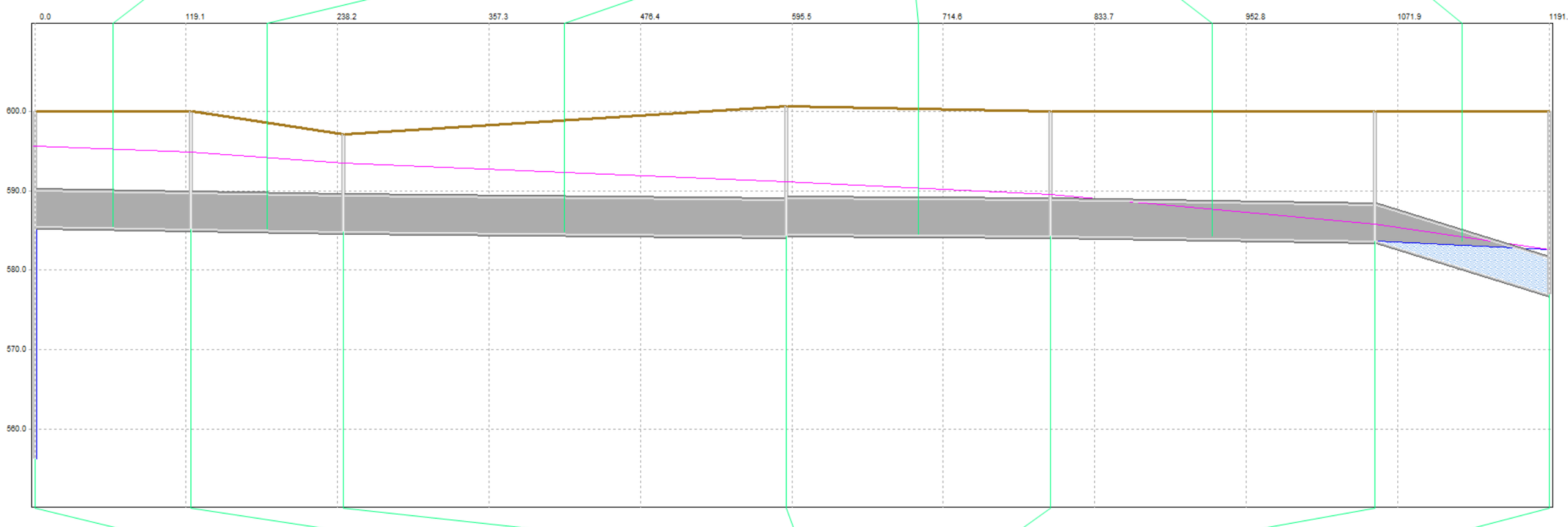
Finalist Alternative A

Finalist Alternative A
Day [0] Time 00:01:00 Step 6

LINK DATA

	n878 ss	n879ss2	n879 ss	n906 ss2	n906 ss	L951
Storm	100-1	100-1	100-1	100-1	100-1	100-1
Diameter (He	4.500	4.500	4.500	4.500	4.500	4.500
Downstream	585.150	584.860	584.350	584.350	583.720	576.980
Upstream Inv	585.470	585.150	584.860	584.541	584.350	583.720
Length	123.000	120.000	348.000	208.000	255.000	137.000
Upstream Cr	589.970	589.650	589.360	589.041	588.850	588.220

Multiple Link from N878 to N879 | Multiple Link from N879 to N931 | Multiple Link from N931 to N906 | Multiple Link from N906 to N932 | Multiple Link from N932 to N945 | Conduit L951 from N945 to OUT1



	N878	N879	N931	N906	N932	N945	OUT1
Storm	100-1	100-1	100-1	100-1	100-1	100-1	100-1
Max Water El	595.596	594.856	593.477	591.155	589.510	585.820	582.570

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

PROPOSED ALTERNATIVE C

PROPOSED CONDITIONS
ALT C SCHEMATIC

File Edit Project View Configuration Tools Analyze Results Window Help

Base Scenario ... 100-1 ... Rnf San Hdr

XPSWMM NODE

XPSWMM LINK

OVERLAND FLOW

OUT2
N856
N857
N843
N855
N854
N839
N842
N840
N841
N853
N920
N916
N914
N915
N918
N919

X=1149590.23 Y=1879280.37 HDR 1:1175.434 NUM OVR

File Edit Project View Configuration Tools Analyze Results Window Help

Base Scenario ... 100-1 ... Rnf San Hdr

XPSWMM NODE

XPSWMM LINK

OVERLAND FLOW

N908 N909 N870 N849 N950 N871 N923 N867 N911 N910 N848 N924 N867 LOW EOP SAG N847 N864 N865 N846 N869 N861 N862 N845 N866 N863 59 N860 N844 N858

ALT C
S. ROW
Storage Pipe

X=1152169.65 Y=1879114.05 HDR 1:1175.434 NUM OVR

File Edit Project View Configuration Tools Analyze Results Window Help

Base Scenario ... 100-1 ... Rnf San Hdr

N945 N893 N900 N894 N886 N898 N931 N899 N926 N896 N895 N904 N879 N888 N906 N905 N903 N889 N907 N878 N902 N949 N932 N876 WET WELL N873 N877 N921 N851 N874 N922 N875 N850 N872 N908 N909 N849 N870 N950 N871

ALT C
S. ROW
Storage Pipe

XPSWMM NODE

XPSWMM LINK

OVERLAND FLOW

X=1153683.84 Y=1879784.42 HDR 1:1175.434 NUM OVR

LINK DATA

PROPOSED
CONDITONS ALT C

Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
L875	100-1	1.000	588.610	592.800	500.000	593.800	N856	N839	589.610
n839 ss	100-1	1.500	583.460	587.600	77.000	589.100	N840	N839	584.960
L876	100-1	2.000	587.460	591.410	500.000	593.410	N857	N840	589.460
n840 ss	100-1	1.500	583.010	583.210	24.000	584.710	N841	N840	584.510
n840 ol1	100-1	1.000	593.210	591.410	24.000	592.410	N841	N840	594.210
n841 ss	100-1	2.000	581.880	582.710	200.000	584.710	N842	N841	583.880
n842 ss	100-1	3.000	580.610	581.130	298.000	584.130	N843	N842	583.610
n843 ss	100-1	3.000	576.790	577.660	398.000	580.660	N844	N843	579.790
n844 ss	100-1	3.000	573.340	573.940	386.000	576.940	N845	N844	576.340
n845 ss	100-1	3.500	565.530	565.790	414.000	569.290	N846	N845	569.030
n846 ss	100-1	4.000	564.270	565.330	260.000	569.330	N847	N846	568.270
n847 ss	100-1	4.500	563.715	564.170	186.000	568.670	N910	N847	568.215
n848 ss	100-1	4.500	563.320	563.520	266.000	568.020	N870	N848	567.820
L957	100-1	4.000	565.020	566.000	100.000	570.000	N950	N849	569.020
n849 ss	100-1	5.000	562.370	563.060	335.000	568.060	N850	N849	567.370
n850 ss	100-1	5.000	562.112	562.370	422.000	567.370	N921	N850	567.112
n851 ss	100-1	5.000	561.354	562.060	383.000	567.060	N949	N851	566.354
n851 ss2	100-1	3.000	566.803	567.188	385.000	570.188	N947	N851	569.803
Low Flow	100-1						N878	WET WELL	
Lead	100-1						N878	WET WELL	
Lag 1	100-1						N878	WET WELL	
Lag 2	100-1						N878	WET WELL	
L877	100-1	1.000	588.870	592.500	480.000	593.500	N855	N853	589.870
n853 ss	100-1	1.500	583.010	584.440	65.000	585.940	N841	N853	584.510
n854 ss	100-1	1.250	581.220	583.010	36.000	584.260	N855	N854	582.470
n854 ol1	100-1	1.000	588.870	586.260	36.000	587.260	N855	N854	589.870
L880	100-1	1.000	587.000	588.870	418.000	589.870	N858	N855	588.000
n855 ss	100-1	1.250	578.260	579.470	61.000	580.720	N843	N855	579.510
L878	100-1	1.000	586.320	588.610	312.000	589.610	N913	N856	587.320
n856 ss	100-1	1.250	580.760	585.110	75.000	586.360	N857	N856	582.010
L879	100-1	2.000	583.860	587.460	395.000	589.460	N860	N857	585.860
n857 ss	100-1	1.500	579.010	579.410	23.000	580.910	N843	N857	580.510
n857 ol1	100-1	1.000	589.160	587.460	23.000	588.460	N843	N857	590.160

LINK DATA

Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
L884	100-1	1.000	585.940	587.000	380.000	588.000	N863	N858	586.940
n858 ss	100-1	1.500	574.340	576.000	85.000	577.500	N844	N858	575.840
L882	100-1	1.000	582.260	585.940	404.000	586.940	N861	N859	583.260
n859 ss	100-1	1.000	578.260	578.440	76.000	579.440	N860	N859	579.260
L883	100-1	2.000	581.420	583.860	390.000	585.860	N862	N860	583.420
n860 ss	100-1	1.750	574.090	574.610	25.000	576.360	N844	N860	575.840
n860 ol1	100-1	1.000	586.090	583.860	25.000	584.860	N844	N860	587.090
L885	100-1	1.000	579.030	582.260	415.000	583.260	N864	N861	580.030
n861 ss	100-1	1.250	575.370	578.060	88.000	579.310	N862	N861	576.620
L886	100-1	2.000	578.520	581.420	420.000	583.420	N865	N862	580.520
n862 ss	100-1	1.500	566.600	567.320	23.000	568.820	N845	N862	568.100
n862 ol1	100-1	1.000	583.140	581.420	22.000	582.420	N845	N862	584.140
L887	100-1	1.000	581.520	585.940	425.000	586.940	N866	N863	582.520
n863 ss	100-1	1.250	567.000	568.950	75.000	570.200	N845	N863	568.250
L888	100-1	1.000	577.310	579.030	264.000	580.030	N867	N864	578.310
n864 ss	100-1	1.000	572.370	575.220	80.000	576.220	N865	N864	573.370
L889	100-1	2.000	576.690	578.520	264.000	580.520	SAG	N865	578.690
n865 ss	100-1	1.500	565.800	566.620	22.000	568.120	N846	N865	567.300
n865 ol1	100-1	1.000	579.680	578.520	22.000	579.520	N846	N865	580.680
L890	100-1	1.000	577.400	581.520	260.000	582.520	N869	N866	578.400
n866 ss	100-1	1.500	565.430	567.420	69.000	568.920	N846	N866	566.930
n867 ss	100-1	1.250	571.140	572.710	78.000	573.960	SAG	N867	572.390
867 weir	100-1						SAG	N867	
n868 ss	100-1	1.500	564.270	565.840	27.000	567.340	N847	SAG	565.770
n868 ol1	100-1	1.000	578.270	576.690	26.000	577.690	N847	SAG	579.270
n869 ss	100-1	1.500	564.270	566.420	64.000	567.920	N847	N869	565.770
n870 ss	100-1	4.500	563.210	563.320	157.000	567.820	N849	N870	567.710
n871 ss	100-1	1.000	563.900	576.130	330.000	577.130	N870	N871	564.900
401.1	100-1	1.000	578.890	582.640	320.000	583.640	N924	N871	579.890
n872 ss	100-1	1.000	562.640	581.560	82.000	582.560	N850	N872	563.640
396.1	100-1	1.000	582.640	587.790	450.000	588.790	N871	N872	583.640
n873 ss	100-1	1.000	583.010	587.040	296.000	588.040	N874	N873	584.010
n873 ol	100-1	1.000	587.790	591.870	287.000	592.870	N874	N873	588.790

LINK DATA

Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
L899	100-1	1.000	582.650	587.790	475.000	588.790	N908	N874	583.650
n874 ss	100-1	1.250	579.210	582.980	71.000	584.230	N875	N874	580.460
L900	100-1	3.000	580.620	585.210	477.000	588.210	N909	N875	583.620
n875 ss	100-1	2.000	562.640	563.710	28.000	565.710	N850	N875	564.640
n875 ol1	100-1	1.000	588.640	585.210	27.000	586.210	N850	N875	589.640
L894	100-1	1.000	585.210	594.500	545.000	595.500	N875	N876	586.210
n876 ss	100-1	1.000	590.370	592.060	57.000	593.060	N877	N876	591.370
n877 ss	100-1	2.000	563.750	563.960	23.000	565.960	N851	N877	565.750
n878 ss	100-1	4.500	585.150	585.470	123.000	589.970	N879	N878	589.650
n879ss2	100-1	4.500	584.860	585.150	120.000	589.650	N931	N879	589.360
L933	100-1	1.000	609.380	611.580	230.000	612.580	N928	N881	610.380
n881 ss	100-1	1.000	606.530	606.480	87.000	607.480	N882	N881	607.530
n882 ss	100-1	1.000	603.090	606.080	230.000	607.080	N883	N882	604.090
n882 ol	100-1	3.000	608.510	610.780	230.000	613.780	N883	N882	611.510
n883 ol	100-1	3.000	606.610	608.510	17.000	611.510	N901	N883	609.610
n901 ss2	100-1	1.500	600.640	602.960	258.000	604.460	N892	N883	602.140
n885 ss	100-1	2.000	588.210	590.190	390.000	592.190	N886	N884	590.210
n887 ss	100-1	2.000	586.840	588.170	325.000	590.170	N888	N886	588.840
L915	100-1	1.000	597.740	601.200	35.000	602.200	N926	N888	598.740
n888 ss	100-1	3.000	586.610	586.840	38.000	589.840	N889	N888	589.610
n889 ss	100-1	3.000	586.000	586.510	23.000	589.510	N879	N889	589.000
L934	100-1	1.000	609.740	611.910	220.000	612.910	N929	N890	610.740
n890 ss	100-1	1.000	605.980	606.860	88.000	607.860	N882	N890	606.980
n891 ss	100-1	1.000	600.840	601.180	78.000	602.180	N892	N891	601.840
n891 weir	100-1						N925	N891	
L924	100-1	3.000	602.090	605.190	150.000	608.190	N900	N892	605.090
n892 ss2	100-1	2.000	599.390	599.340	21.000	601.340	N933	N892	601.390
n893 ss	100-1	1.000	589.180	598.500	78.000	599.500	N894	N893	590.180
L918	100-1	2.000	597.740	602.680	280.000	604.680	N926	N894	599.740
n894 ss2	100-1	4.500	586.920	587.380	246.000	591.880	N899	N894	591.420
n895 ss	100-1	1.250	589.510	589.940	96.000	591.190	N886	N895	590.760
n896 ss	100-1	1.000	589.910	598.640	87.000	599.640	N894	N896	590.910
N896 weir	100-1						N895	N896	

LINK DATA

Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
n897 ss	100-1	1.000	600.590	601.690	84.000	602.690	N892	N897	601.590
N897 weir	100-1						N895	N897	
n898 ss	100-1	1.000	590.720	595.400	75.000	596.400	N899	N898	591.720
n898 weir	100-1						N925	N898	
L914	100-1	1.000	597.740	601.160	40.000	602.160	N926	N899	598.740
n899 ss	100-1	4.500	586.880	586.910	28.000	591.410	N888	N899	591.380
L923	100-1	3.000	597.740	602.090	372.000	605.090	N926	N900	600.740
n900 ss	100-1	1.500	589.460	589.380	23.000	590.880	N886	N900	590.960
L926	100-1	3.000	605.440	606.610	242.000	609.610	N892	N901	608.440
n901 ss	100-1	2.000	590.620	590.510	28.000	592.510	N884	N901	592.620
L896	100-1	3.000	591.450	597.980	420.000	600.980	N922	N902	594.450
n902 ss	100-1	1.000	592.100	592.980	84.000	593.980	N903	N902	593.100
L891	100-1	3.000	592.060	596.900	293.000	599.900	N876	N903	595.060
n903 ss3	100-1	1.500	590.070	591.650	222.000	593.150	N899	N903	591.570
L910	100-1	1.000	595.290	598.030	207.000	599.030	N907	N904	596.290
n904 ss	100-1	1.000	593.040	593.130	61.000	594.130	N905	N904	594.040
n905 ss	100-1	1.000	592.000	593.040	11.000	594.040	N903	N905	593.000
n905 ol1	100-1	1.000	596.900	598.740	11.000	599.740	N903	N905	597.900
n906 ss2	100-1	4.500	584.350	584.541	208.000	589.041	N932	N906	588.850
L892	100-1	1.000	591.870	595.490	335.000	596.490	N873	N907	592.870
n907 ss	100-1	1.000	592.000	592.840	30.000	593.840	N906	N907	593.000
L906	100-1	1.000	578.020	582.650	475.000	583.650	N923	N908	579.020
n908 ss	100-1	1.000	576.770	578.170	90.000	579.170	N909	N908	577.770
L905	100-1	2.000	577.310	580.620	370.000	582.620	N911	N909	579.310
n909 ss	100-1	1.000	576.000	576.770	37.000	577.770	N870	N909	577.000
n909 ol1	100-1	1.000	583.000	580.620	35.000	581.620	N870	N909	584.000
n910 ss	100-1	4.500	563.520	563.715	80.000	568.215	N848	N910	568.020
L908	100-1	2.000	576.690	577.310	191.000	579.310	SAG	N911	578.690
n911 ss	100-1	1.000	572.000	572.660	21.000	573.660	N910	N911	573.000
n911 ol1	100-1	1.000	578.500	577.310	22.000	578.310	N910	N911	579.500
L881	100-1	1.000	585.940	586.320	66.000	587.320	N859	N913	586.940
n913 ss	100-1	1.000	578.260	582.960	125.000	583.960	N860	N913	579.260
L871	100-1	1.000	597.410	600.240	325.000	601.240	N920	N914	598.410

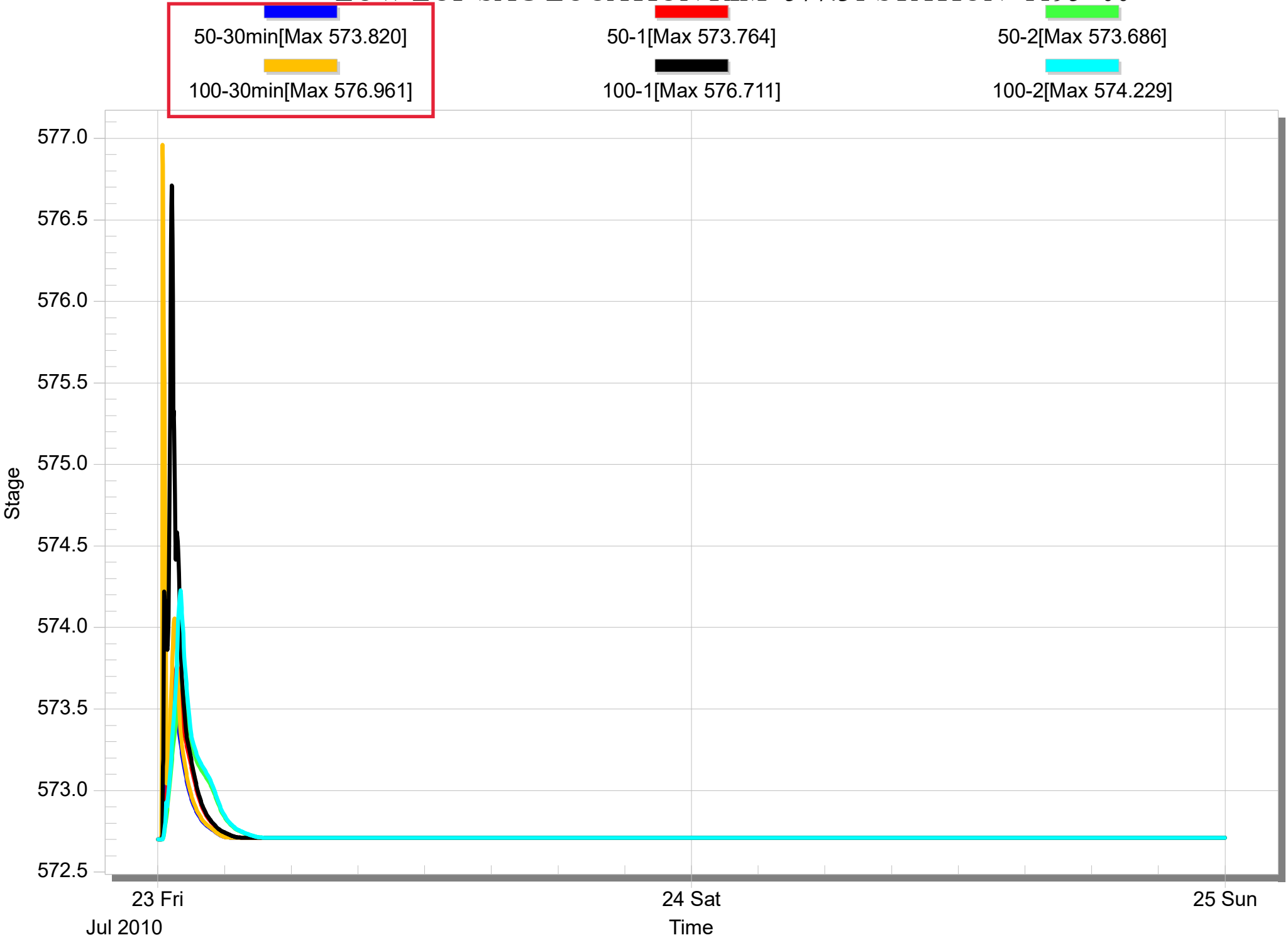
LINK DATA

Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
n914 ss	100-1	3.000	583.350	584.390	335.000	587.390	N915	N914	586.350
L874	100-1	2.000	591.410	596.000	605.000	598.000	N840	N915	593.410
n915 ss	100-1	3.000	582.958	583.350	147.000	586.350	N916	N915	585.958
n918 ss	100-1	6.000	578.500	580.000	300.000	586.000	OUT2	N916	584.500
n918 ol	100-1	2.000	596.325	600.980	629.000	602.980	N915	N918	598.325
918 ss	100-1	1.000	591.901	596.430	629.000	597.430	N915	N918	592.901
L872	100-1	1.000	590.990	597.940	750.000	598.940	N853	N919	591.990
n919 ss	100-1	3.000	582.958	583.940	388.000	586.940	N916	N919	585.958
L873	100-1	1.000	592.800	597.410	575.000	598.410	N839	N920	593.800
n920 ss	100-1	1.000	590.000	592.510	80.000	593.510	N915	N920	591.000
L898	100-1	1.000	585.210	594.500	422.000	595.500	N875	N921	586.210
n921 ss	100-1	5.000	562.060	562.112	86.000	567.112	N851	N921	567.060
n921 ol	100-1	1.000	594.560	593.500	86.000	594.500	N851	N921	595.560
L952	100-1	4.000	564.462	567.170	500.000	571.170	N949	N922	568.462
n922 ss	100-1	1.000	584.170	589.150	127.000	590.150	N921	N922	585.170
392.1	100-1	1.000	587.790	592.500	385.000	593.500	N872	N922	588.790
L909	100-1	1.000	577.310	578.020	100.000	579.020	N867	N923	578.310
n923 ss	100-1	1.000	573.000	575.010	127.000	576.010	N910	N923	574.000
n924 ss	100-1	1.000	572.000	573.460	56.000	574.460	N910	N924	573.000
404.1	100-1	1.000	577.400	578.890	210.000	579.890	N869	N924	578.400
n893 ol	100-1	1.000	603.440	597.000	50.000	598.000	N893	N925	604.440
n926 ss	100-1	1.500	588.110	588.090	22.000	589.590	N889	N926	589.610
n926 ol1	100-1	1.000	600.910	597.740	22.000	598.740	N889	N926	601.910
n903 ol	100-1	2.000	596.900	597.740	190.000	599.740	N903	N926	598.900
L929	100-1	1.000	606.300	609.380	260.000	610.380	N891	N928	607.300
n928 ss	100-1	1.000	603.950	605.340	80.000	606.340	N883	N928	604.950
L930	100-1	1.000	606.490	609.740	275.000	610.740	N897	N929	607.490
n929 ss	100-1	1.000	603.310	604.690	87.000	605.690	N883	N929	604.310
n879 ss	100-1	4.500	584.350	584.860	348.000	589.360	N906	N931	588.850
n906 ss	100-1	4.500	583.720	584.350	255.000	588.850	N945	N932	588.220
n933 ss	100-1	4.500	587.380	587.390	230.000	591.890	N894	N933	591.880
n931 ss	100-1	1.500	589.366	589.974	320.000	591.474	N101	N100	590.866
n932 ss	100-1	1.500	588.477	589.366	468.000	590.866	N102	N101	589.977

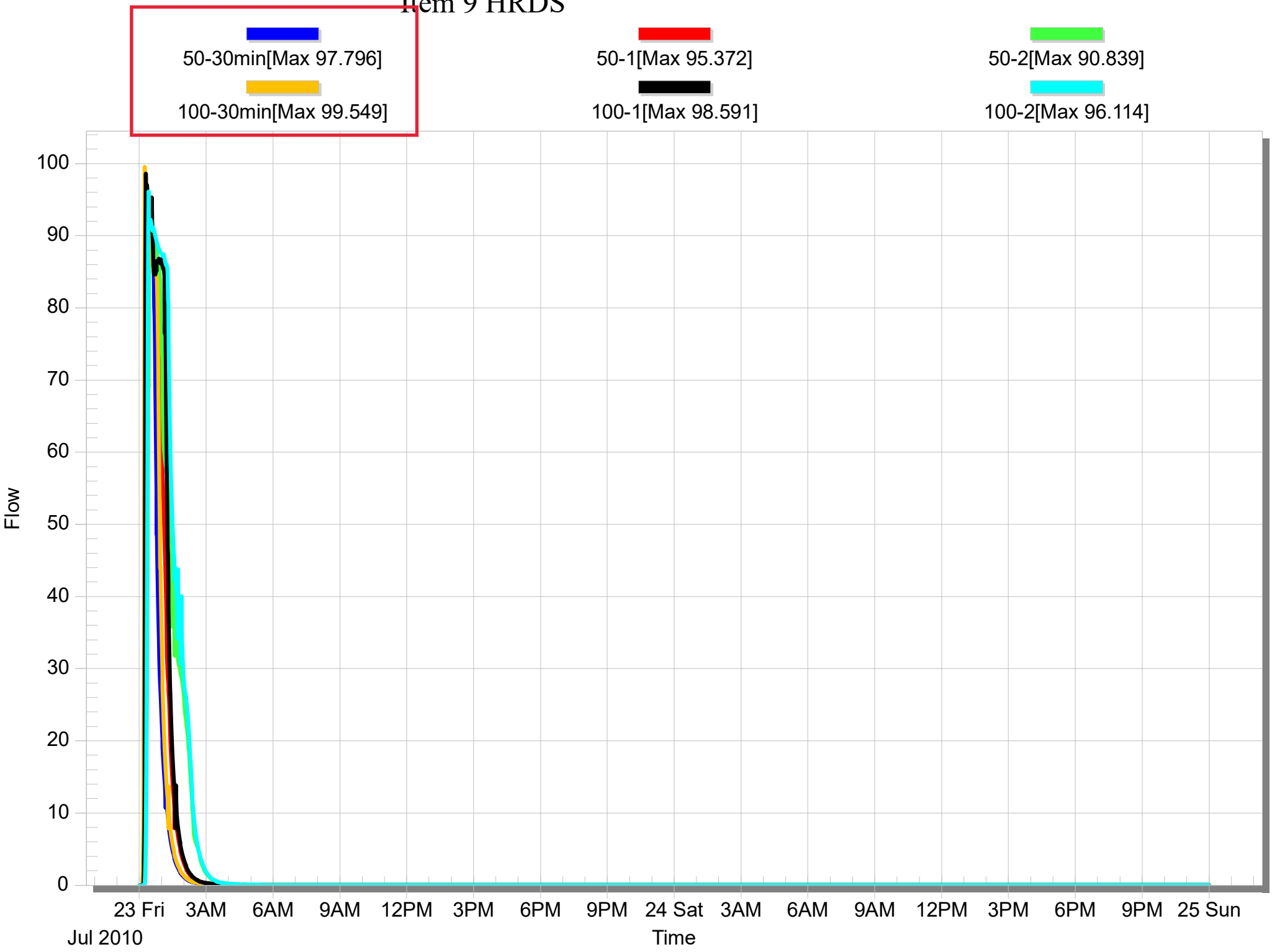
LINK DATA

Name	Storm	Diameter (Height) ft	Downstream Invert Elevation ft	Upstream Invert Elevation ft	Length ft	Upstream Crown Elevation ft	Downstream Node Name	Upstream Node Name	Downstream Crown Elevation ft
n933 ss.1	100-1	2.000	587.688	588.477	415.000	590.477	N103	N102	589.688
n934 ss	100-1	3.000	587.175	587.688	270.000	590.688	N104	N103	590.175
n935 ss	100-1	3.000	587.033	587.175	75.000	590.175	N105	N104	590.033
n936 ss	100-1	3.000	586.083	587.033	500.000	590.033	N106	N105	589.083
n937 ss	100-1	3.000	585.203	586.083	463.000	589.083	N107	N106	588.203
n938 ss	100-1	3.000	584.646	585.203	293.000	588.203	N108	N107	587.646
n939 ss	100-1	3.000	584.350	584.646	156.040	587.646	N932	N108	587.350
L951	100-1	4.500	576.980	583.720	137.000	588.220	OUT1	N945	581.480
n947 ss2	100-1	3.000	561.170	561.270	100.000	564.270	WET WELL	N947	564.170
949 ss	100-1	5.000	561.170	561.354	100.000	566.354	WET WELL	N949	566.170
L956	100-1	6.000	564.820	565.020	1200.000	571.020	N949	N950	570.820

PROPOSED ALT C Node - N867
LOW EOP SAG LOCATION RIM=577.31 STATION~1195+00



Conduit 949 ss from N949 to WET WELL
Item 9 HRDS



PROPOSED DYNAMIC
ALTERNATIVE C
MAIN DRAIN 50-YEAR

xpswmm 2014 - [Dynamic Long Section]

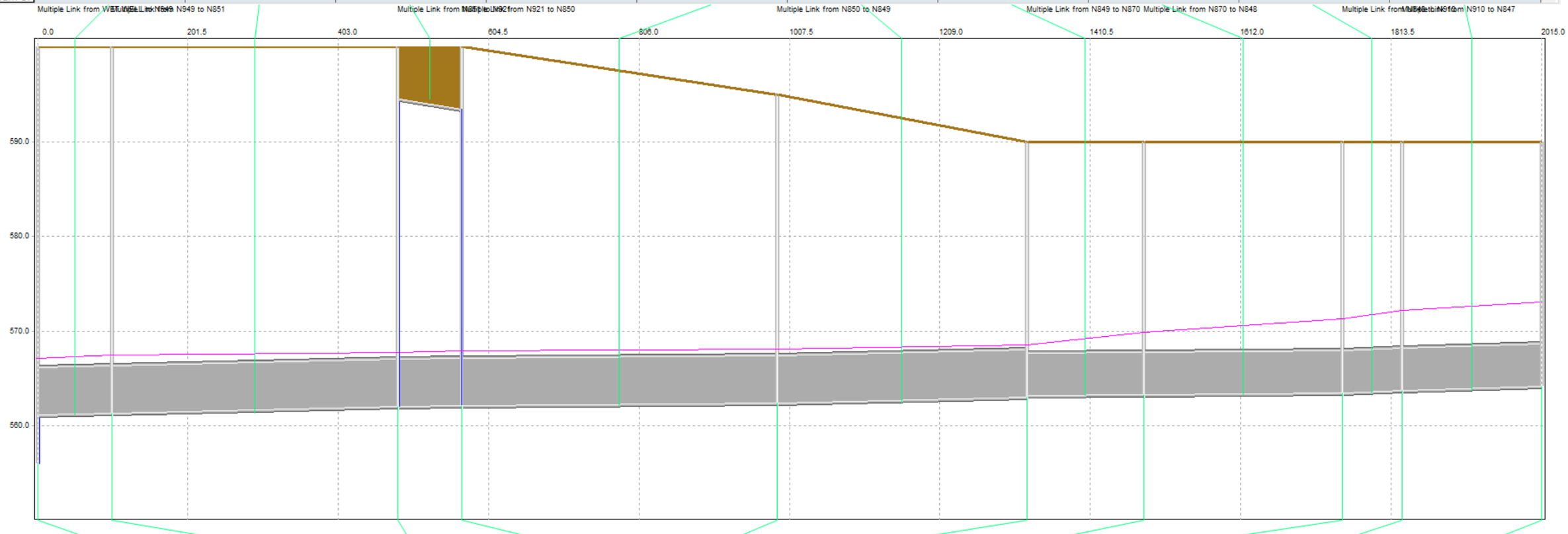
File View Window

Base Scenario | 50-30min | Active Subcatchments | Close

Alternative C
Day [0]

LINK DATA

	949 ss	n851 ss	n921 ss	n921 ol	n850 ss	n849 ss	n870 ss	n848 ss	n910 ss	n847 ss
Storm	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min
Diameter (He	5.000	5.000	5.000	1.000	5.000	5.000	4.500	4.500	4.500	4.500
Downstream	561.170	561.354	562.060	594.560	562.112	562.370	563.210	563.320	563.520	563.715
Upstream Inv	561.354	562.060	562.112	593.500	562.370	563.060	563.320	563.520	563.715	564.170
Length	100.000	383.000	86.000	86.000	422.000	335.000	157.000	266.000	80.000	186.000
Upstream Cr	566.354	567.060	567.112	594.500	567.370	568.060	567.820	568.020	568.215	568.670



	WET WELL	N949	N851	N921	N850	N849	N870	N848	N910	N847
Storm	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min	50-30min
Max Water El	567.090	567.484	567.751	567.886	568.125	568.509	569.867	571.314	572.220	573.090

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

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PROPOSED DYNAMIC ALTERNATIVE C STORAGE PIPE 50-YEAR

xpswmm 2014 - [Dynamic Long Section]

File View Window

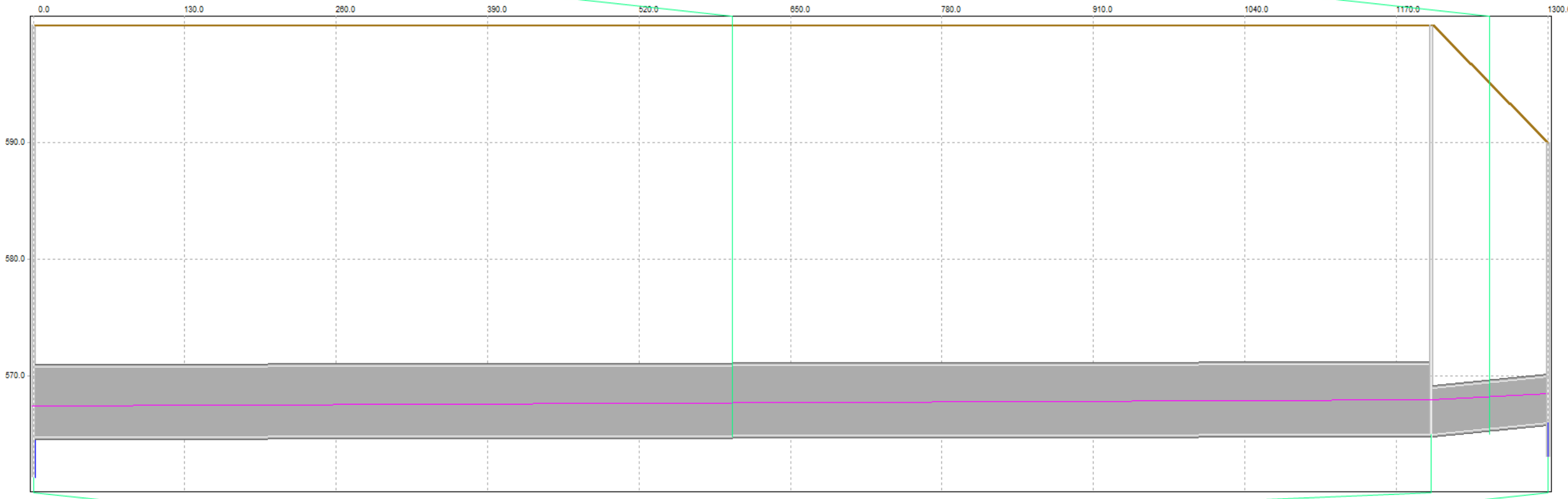
Base Scenario | 50-30min | Active Subcatchments | Close

Alternative C
Day [0] Time 00:01:00 Step 6

LINK DATA

	L956	L957
Storm	50-30min	50-30min
Diameter (He	6.000	4.000
Downstream	564.820	565.020
Upstream Inv	565.020	566.000
Length	1200.000	100.000
Upstream Cr	571.020	570.000

Conduit L956 from N949 to N950



	N949	N950	N849
Storm	50-30min	50-30min	50-30min
Max Water El	567.484	567.966	568.509

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

PROPOSED DYNAMIC
ALTERNATIVE C
OUTFALL PIPE 50-YEAR

xpswmm 2014 - [Dynamic Long Section]

File View Window

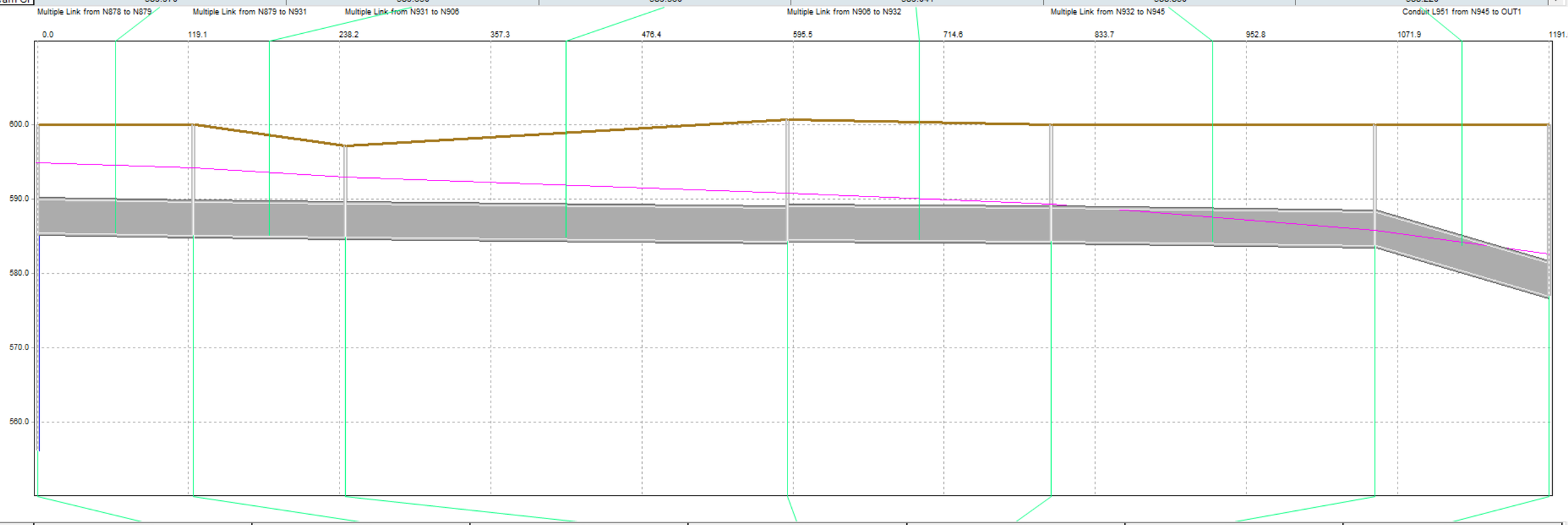
Base Scenario | 50-1 | Active Subcatchments | Close

Alternative C

Alternative C
Day [0]

LINK DATA

	n878 ss	n879ss2	n879 ss	n906 ss2	n906 ss	L951
Storm	50-1	50-1	50-1	50-1	50-1	50-1
Diameter (He	4.500	4.500	4.500	4.500	4.500	4.500
Downstream	585.150	584.860	584.350	584.350	583.720	576.980
Upstream Inv	585.470	585.150	584.860	584.541	584.350	583.720
Length	123.000	120.000	348.000	208.000	255.000	137.000
Upstream Cr	589.970	589.650	589.360	589.041	588.850	588.220



	N878	N879	N931	N906	N932	N945	OUT1
Storm	50-1	50-1	50-1	50-1	50-1	50-1	50-1
Max Water El	594.866	594.139	592.878	590.821	589.292	585.732	582.570

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

PROPOSED DYNAMIC
ALTERNATIVE C
MAIN DRAIN 100-YEAR

xpswmm 2014 - [Dynamic Long Section]

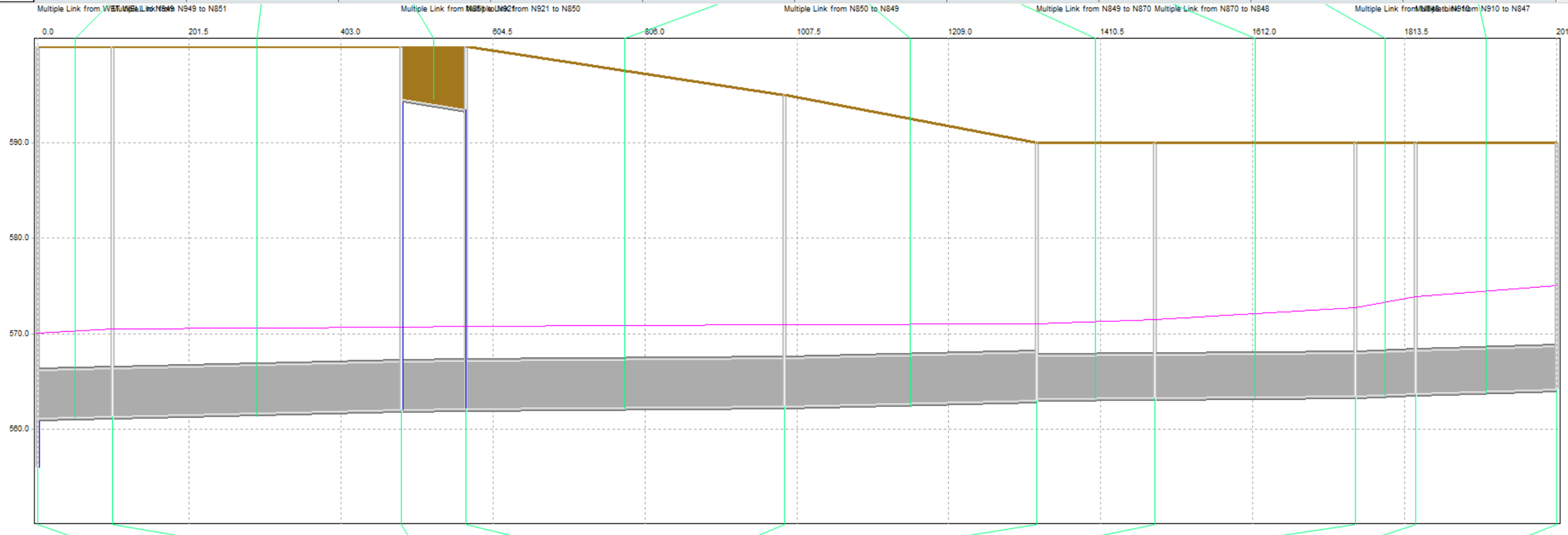
File View Window

Base Scenario | 100-30min | Active Subcatchments | Close

Alternative C
Day [0]

LINK DATA

	949 ss	n851 ss	n921 ss	n921 ol	n850 ss	n849 ss	n870 ss	n848 ss	n910 ss	n847 ss
Storm	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min
Diameter (He	5.000	5.000	5.000	1.000	5.000	5.000	4.500	4.500	4.500	4.500
Downstream	561.170	561.354	562.060	594.560	562.112	562.370	563.210	563.320	563.520	563.715
Upstream Inv	561.354	562.060	562.112	593.500	562.370	563.060	563.320	563.520	563.715	564.170
Length	100.000	383.000	86.000	86.000	422.000	335.000	157.000	266.000	80.000	186.000
Upstream Cr	566.354	567.060	567.112	594.500	567.370	568.060	567.820	568.020	568.215	568.670



	WET WELL	N949	N851	N921	N850	N849	N870	N848	N910	N847
Storm	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min	100-30min
Max Water El	570.099	570.527	570.697	570.790	570.949	571.007	571.510	572.694	573.890	575.071

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

PROPOSED DYNAMIC
ALTERNATIVE C
STORAGE PIPE 100-YEAR

xpswmm 2014 - [Dynamic Long Section]

File View Window

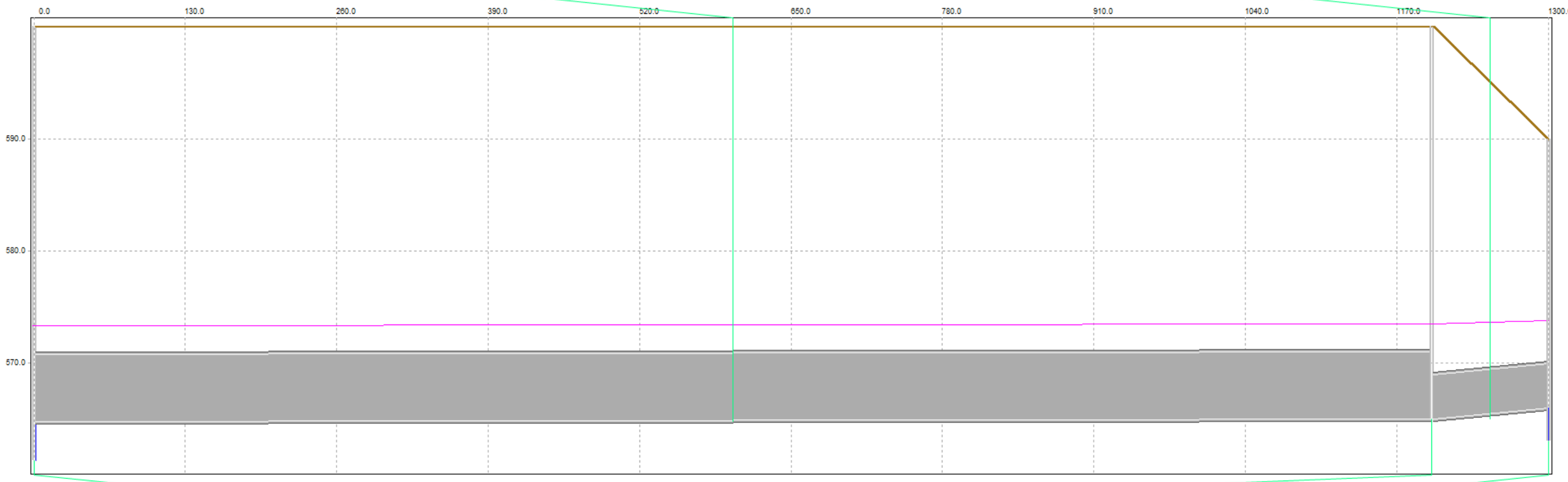
Base Scenario | 100-1 | Active Subcatchments | Close

Alternative C
Day [0]

LINK DATA

	L956	L957
Storm	100-1	100-1
Diameter (He	6.000	4.000
Downstream	564.820	565.020
Upstream Inv	565.020	566.000
Length	1200.000	100.000
Upstream Cr	571.020	570.000

Conduit L956 from N949 to N950



	N949	N950	N849
Storm	100-1	100-1	100-1
Max Water El	573.333	573.498	573.798

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

PROPOSED DYNAMIC
ALTERNATIVE C
OUTFALL PIPE 100-YEAR

xpswmm 2014 - [Dynamic Long Section]

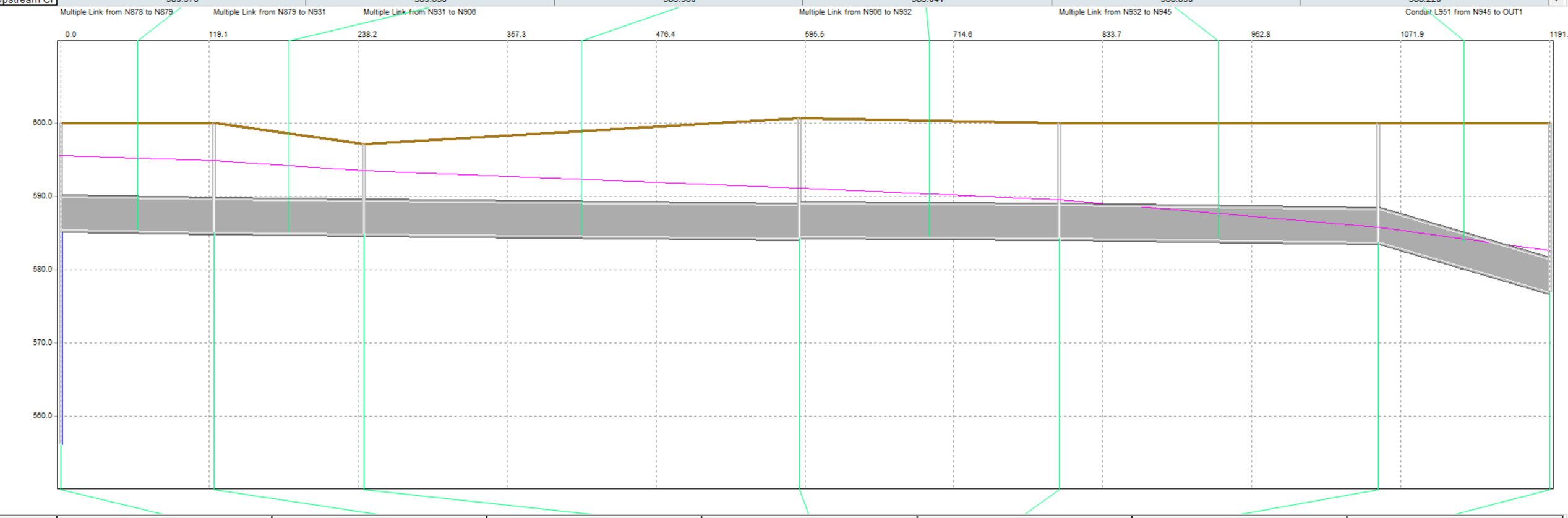
File View Window

Base Scenario | 100-1 | Active Subcatchments | Close

Alternative C
Day [0]

INK DATA

	n878 ss	n879ss2	n879 ss	n906 ss2	n906 ss	L951
Storm	100-1	100-1	100-1	100-1	100-1	100-1
Diameter (He	4.500	4.500	4.500	4.500	4.500	4.500
Downstream	585.150	584.860	584.350	584.350	583.720	576.980
Upstream Inv	585.470	585.150	584.860	584.541	584.350	583.720
Length	123.000	120.000	348.000	208.000	255.000	137.000
Upstream Cr	589.970	589.650	589.360	589.041	588.850	588.220



	N878	N879	N931	N906	N932	N945	OUT1
Storm	100-1	100-1	100-1	100-1	100-1	100-1	100-1
Max Water El	595.584	594.842	593.459	591.161	589.508	585.820	582.570

Hydrologic Parameters | Hydro | Ponding | RESULTS | output

Section 15
Correspondence

From: Winograd, Esther B
To: Ilene Dailey
Cc: Dave Vogel
Subject: I-55, pump station # 30, low flow pump.
Date: Tuesday, February 07, 2017 3:05:31 PM
Attachments: image001.png
Image02032017.pdf

Hi Ilene,

We just received the attached information from our Electrical Section.
The email below notes that the pump cycling is 8 starts/stops per hour (which is equivalent to every 7.5 minutes).
Looks like this is the best information we have for this pump.
Please include this information in the report where relevant. The letter and attachment should also be included in the correspondence section.

Thanks

Esther Winograd
Hydraulic Section
Bureau of programming
IDOT-DOH
201 West Center Court,
Schaumburg, IL 60196-1096
tel; 847/705-4475

From: Zenki, Omar
Sent: Tuesday, February 07, 2017 2:25 PM
To: Winograd, Esther B
Cc: Galaria, Dawood U
Subject: FW: From Omar Zenki -IDOT

Esther,

Please see the attached file and the email below. It is regarding the low flow pump in PS-30. I met couple people from Grundfos at PS-24 and asked them to help in this regard. I am not sure how accurate the provided information are. I hope this information would be helpful for you.

Omar

From: Kenneth Adomaitis [mailto:kadomaitis@grundfos.com]
Sent: Tuesday, February 07, 2017 2:07 PM
To: Zenki, Omar; Jay Darby
Cc: Galaria, Dawood U
Subject: [External] RE: From Omar Zenki -IDOT

Omar-

We found the original order which has the dimensions and order information (see attached

document).
The pumps have Reliance motors which are classified as 'special duty'. They are rated at 8 starts/stops per hour.

Kind regards,

Kenneth Adomaitis
Field Service Engineer II
mobile: +1-331-220-5204
E-mail: kadomaitis@grundfos.com

Gundfos Water Utility Inc.
3905 Enterprise Court
Aurora, IL 60504
U.S.A.
Phone: (+1) 630 236 5500
www.grundfos.us

Please take a minute to complete our Customer Satisfaction Survey, for a chance to win a $50 Amazon gift card.
https://www.surveymonkey.com/r/M5YMWV7

From: Zenki, Omar [mailto:Omar.Zenki@illinois.gov]
Sent: Thursday, February 2, 2017 8:03 AM
To: Kenneth Adomaitis <kadomaitis@grundfos.com>; Jay Darby <jdarby@grundfos.com>
Cc: Galaria, Dawood U <Dawood.Galaria@illinois.gov>
Subject: From Omar Zenki -IDOT

Gentlemen,

It was a pleasure meeting you yesterday at IDOT PS-24. This is the Yeomans pump mdoel number that I mentioned to you: (X32OTY), 50 HP, 2700 GPM. Those numbers were taken from the pump's nameplate. I appreciate your help in determining the rated number of starts per hour. We do not know the year of production of the pump. The pump is currently installed in IDOT pump station 30. It is located at the Stevenson Expressway (I-55) and Kedzie Avenue in Chicago.

Thank you,

Omar Zenki
Illinois Department of Transportation
D1-Electrical Operations
201 West Center Court
Schaumburg, IL 60196-1096
Phone: (847)-705-4352
Email: Omar.Zenki@illinois.gov

CLOW

Pump Division
Clow Corporation
Melrose Park, Illinois

Clow Yeomans
SERIES 9000

QUICK LIFT ASSEMBLY

Dual Rail
(Dwg. No. 104127) BX

Customer: ALD-CASS ELECTRIC, INC. Conditions: 2800 USGPM @ 48 Ft. TDH

P.O.: 50874 50 HP 1160 RPM 460 Vac. 3 - Ph. 60 Hertz

Name of Job: I.L. DEPT. OF TRANSP. S.O. No.: 266677

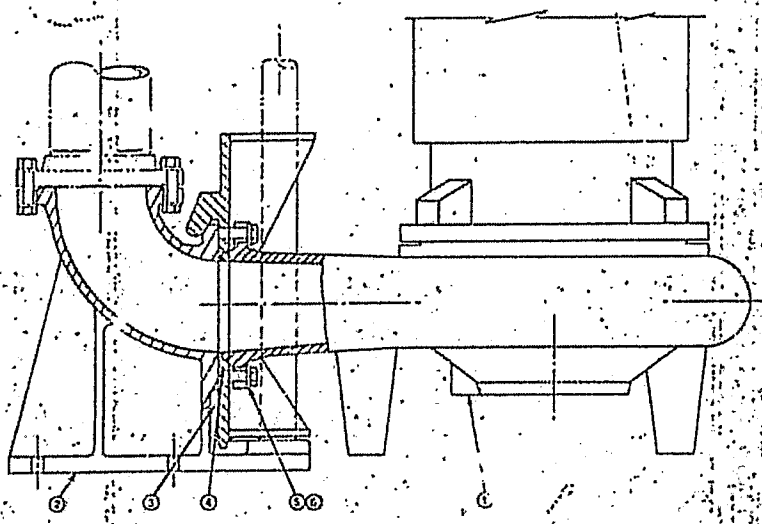
Pump Model: 8x8x18x5SC Mfr. Frame 320TY Marks: P.S. #30 (LOW FLOW PUMP)

COMPONENT & MATERIALS LIST

ITEM	QTY	DESCRIPTION NAME	STANDARD MATERIAL	UL LISTED (Non-Sparking)	
1	1	Series 9000 Submersible Pump & Motor Ass'y.			
2	1	Quick Lift Stationary Base ELL	Cast Iron	Cast Iron	
3	1	Quick Lift Side Plate	Cast Iron	Bronze	
4	1	Sealing Washer	Neoprene	Neoprene	
5	8/12	Hex Hd. Cap Screws	Steel	S.S. Bronze	
6	8/12	Lockwasher-Spring Type	Steel	S.S. Bronze	

ADAPTATION OF 4" PUMP TO DUAL RAIL SYSTEM

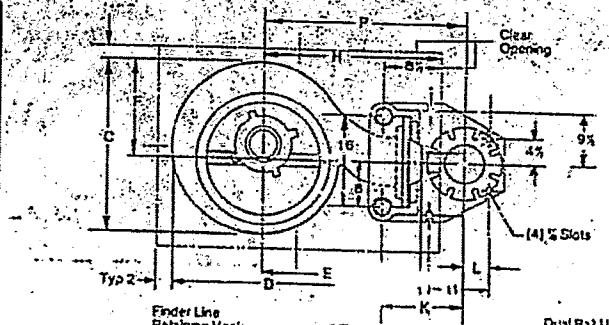
7	1	Adapter-4" to Side Plate (Not Shown-Furnished Only When Req'd.)	Cast Iron	Cast Iron	
8	0	Socket Hd. Cap Screws	Steel	S.S. Bronze	

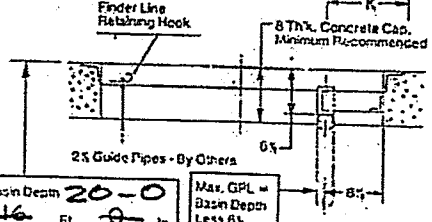


Prepared by: _____ Date: _____

SERIES 9000 SUBMERSIBLE PUMPS

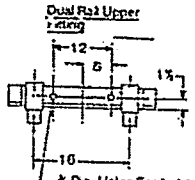
With Dual Rail Quick Lift Fittings - 8 x 8, 8 x 10
Pump Units 8 x 8 x 15 x 5; 8 x 8 x 17 x 4; 8 x 8 x 18 x 5
(Dwg. No. 104060-C) X



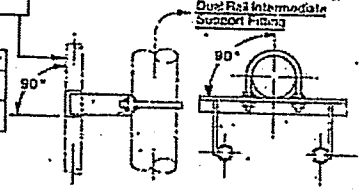


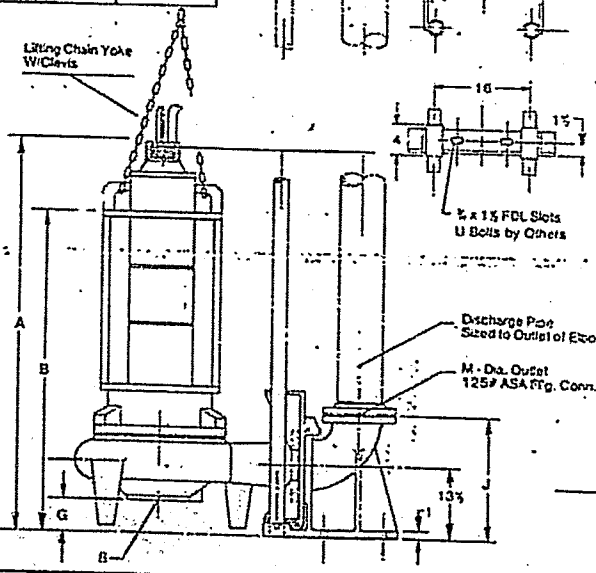
Basin Depth 20 - 0
16 Ft. 0 In.

Max. GPL = Basin Depth Less 6¾



LIFTING CHAIN	210-250TY	320TY	360TY
CHAIN SIZE	¼"	⅜"	½"
CABLE SIZE	¼"	⅜"	





SUBMERSIBLE

Squirrel Cage Induction Motors
Totally Enclosed Non-Ventilated
W/Thermal Protection/Moisture Detection
UL Approved Class 1 Groups C & D
TY Motor Frame/HP Ratings

THREE PHASE

200 • 230 • 460 • 575 VAC

MOTOR HP	OPERATING RPM 1750	1160	875
5	210	210	210
7½			
10			250
15		250	
20			320
25	250		
30		320	
40			
50	320		360
60		360	
75			
100	360		
125			
150			

Customer: ALD-CASS ELECTRIC, INC.

P.O. No.: 50874

Name of Job: ILL. DEPT. OF TRANSP. (PUMP STA. #30)

Pump Model: 8x8x18x5 SC Mtr. Frame: 320TY

Conditions: 2800 USGPM@ 48 FT. TDH:

50 HP; 1160 RPM; 460 Vac: 3 Ph; 60 Hertz;

S.O. No.: 266677

Marks: P.S. #30 (LOW FLOW PUMP)

- Quick Lift Assembly (Pump - Slide Plate Ass'y.)
  - Standard (All Iron)
  - UL Listed (Non-Sparking)

MODEL	RECOMMENDED CLEAR OPENING (L x W)
8x8x15x5	12 x 33
8x8x17x4	44 x 37

QUICK LIFT STATIONARY ELL	J	K	L	M	WT. (LBS)
8x8	22¾	13	5	6	292
8x10	24¾	15	3	10	337

SERIES 9000 MODEL UNIT	MOTOR FRAME	A	B	UNIT WT. #	GUIDE PIPE SCH. NO.	GUIDE PIPE MAX. SECT. LG'TH	C	D	E	F	G	H	P 8x8	P 8x10
8x8x15x5	250	53 3/4	43¾	1359	40	12'-0	28¼	37	23⅝	14½	6¾	26½	31	33
	320	57 13/16	45 5/16	1639	80	10'-0								
	360	63	52 3/8	2109	80	8'-0								
~~8x8x17x4~~	320	58 1/16	46 3/16	1883	40	10'-0	29 11/16	38 11/16	23⅝	16 1/16	6	26½	31	33
8x8x18x5	~~360~~	62 3/4	~~52~~	2800	~~80~~	~~8'-0~~								

All Dimensions in inches. Subject to change without notice. "C" REV. 1-88 UPDATED

/82 DRAWER 33 9000 SERIES Page 59

YEOMANS SERIES 9000

104060-C

PHONE CONVERSATION LOG

DATE: May 10, 2017

PERSON (Contacted/Calling): Santos Batista

AFFILIATION: IDOT Hydraulics

PHONE NUMBER: (847) 705-4764

CBBEL REPRESENTATIVE: David Vogel, PE

PROJECT NAME: IDOT Pump Station #30

PROJECT NUMBER: 11-0203

COPIES TO: Ilene Dailey
Project File

SUBJECT: Pump Station #30 Existing Conditions XP-SWMM Analysis

NOTES:

Santos called to discuss his findings regarding the existing conditions kinematic XP-SWMM model results and mass flow routing:

- He did not find any errors in the XP-SWMM input data, mass routing data, or system storage calculations.
- He is getting similar XP-SWMM results as CBBEL (50-yr within 0.1 ft of mass route, 100-year different by ~4 ft). He attributes the large 100-year difference to XP-SWMM instability in the full main drain conduit. He attempted to input stability weirs within the main drain, but could not reduce the peak WSEL in the wet pit with this method. He noted that this is an issue that IDOT has run into before in other pump station situations where the main drain is full.
- CBBEL should submit the XP-SWMM model to XP customer support to seek resolution to the instability.
- If no further improvements can be made, CBBEL should proceed with the proposed conditions kinematic analysis.

- A face-to-face meeting between IDOT and CBBEL is not necessary at this time.

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IDOT Hydraulics Coordination Meeting Summary

Date:	March 24, 2017
Time:	8:00 AM
Location:	IDOT Traffic Conference Room 201 West Center Court Schaumburg, IL 60196
Attendees:	See Sign-in Sheet

1. The meeting commenced at 8:00 AM.
2. The main goal of the meeting was to discuss the preferred "disconnect" modeling methodology. Additional discussion centered on the need for expanded narrative, tables, and references to provide clarity in the pump station hydraulic report (HR).
3. The general setup of the Existing and Proposed Dynamic Models is acceptable. The following items should be added to the narrative:
    a. Discuss why only overland flow routing was used, and not storage, to avoid double-counting storage on the pavement.
    b. Discuss where the surveyed rim elevations are provided in the Existing Dynamic Model, and how those relate to the spill crest elevations. Overland flow elevations include rim elevation plus flow depth.
4. The following steps are recommended for completing the Existing and Proposed Kinematic (disconnect) Models:
    a. Existing Kinematic Model
        i. Change the XP-SWMM Hydraulics Routing Control Method to kinematic
        ii. Change ponding type for nodes in the model to "Sealed" as appropriate
        iii. Eliminate any surface storage
        iv. Disconnect the main drain from the pump station as is currently done
        v. Use the resulting existing kinematic flow hydrograph at the 60-inch diameter pipe outfall in the existing mass flow routing
        vi. It is expected that the water elevation in the wet well from the Existing Dynamic Model should closely match the elevation found by mass flow routing.
    b. Proposed Kinematic Model
        i. Change the CN values in the Existing Kinematic model to represent the proposed land use (paved median)
        ii. Make no other changes to the Existing Kinematic model

   iii. Use the resulting proposed kinematic flow hydrograph at the 60-inch diameter pipe outfall in the proposed mass flow routing.
   iv. It is expected that the water elevation in the wet well from the Proposed Dynamic Model will closely match the elevation found by mass flow routing.

5. The following items should be completed:
   a. File names for models must include the terms “kinematic” and “dynamic”
   b. Table headings must include the terms “kinematic” and “dynamic”
   c. Add clearly labeled Proposed Conditions sections in the narrative
   d. Check flow rates in the model vs. report
   e. Add references in the narrative and tables indicating where all data comes from
   f. Add proposed condition flow rates, etc. into the report.
   g. Disconnect results reported in the summary tables should come from the kinematic hydrograph mass flow routing
   h. The 50-year and 100-year critical storms should be provided in the same XP-SWMM model run
6. Usable Storage spreadsheet calculations and procedures need more explanation.
   a. Lead on storage – Lead off storage = Usable storage
   b. Describe how usable storage was calculated, including procedures incorporated into spreadsheet.
7. Clarify the total tributary area to the pump station. Clarify if flow from the RR yard does or does not contribute. What is the actual total tributary area? What areas are not tributary?
8. IDOT Flooding Reports – How do the XP-SWMM elevations compare to the flooding report depths? What is the expected pavement flooding depth per the historic flooding reports?
9. In the narrative, add the following information:
   a. Provide tables for hydrologic input parameters for both existing and proposed conditions.
   b. Create XP-SWMM Link/Node Summary Table including invert elevations, pipe lengths, and pipe sizes for both existing and proposed conditions.
   c. Explain the differences and which is the correct elevation (577 or 568) for volume calculation vs. the old SPACECO pump station report.
   d. List the capacity of the outflow pipe.
   e. Add explanation / check if the overflow pipe surcharges and water flows back to the pump station. Verify that there’s an overflow link.
   f. Add details about the cycle times for low flow and high flow pumps. Are the pumps meeting allowable cycle times/ # of cycles per hour?
   g. Check flow rate units. Okay to list in both GPM and CFS
   h. Add more detail to proposed condition with invert/length/flow rate
   i. Add SCADA tables into the report for existing and proposed pumps

10. IDOT agreed that CBBEL can send updated models and draft revised narrative for interim review before a full resubmittal is made.

Action Items are Items 3 through 9 above.

The meeting adjourned at 8:50 AM.

The foregoing is considered to be a true and accurate summary of all items discussed.

Prepared by:
Ilene Dailey
Project Manager, CBBEL
Phone: (847) 823-0500
idailey@cbbel.com

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Illinois Department of Transportation

Attendance Roster

Bureau: PROGRAMMING Section: HYDRAULICS

Project/Topic: I-55 Managed lanes, P.S. 30

Date: 3,24,2017

Time: 8:00 AM

Location: BUREAU OF TRAFFIC CR

	Attendees	Representing	Phone Number	Email Address
1.	AGAR SHIRANI	IDOT-HYDRAULICS	847-705-4765	AGAR.SHIRANI@ ILLINOIS.GOV
2.	Santos Batista	IDOT-Hydraulics	847 705-4764	santos.batista@illinois.gov
3.	DAVE VOGEL	CBBEL	847-823-0500	dvogel@cbbel.com
4.	Ilene Dailey	CBBEL	847-823-0500	idailey@cbbel.com
5.	ESTHER WINOGRAD	IDOT/HYD.	847-705-4475	esther.winograd@illinois.gov
6.	Francisco Rios	IDOT-Hydraulics	847-705-4784	francisco.rios@illinois.gov
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I-55 MANAGED LANE PROJECT

Pump Station 30 – IDOT Hydraulics

Meeting Data/Time:	September 15, 2016 9:00 AM - 11:00 AM
Meeting Location:	IDOT Materials Conference Room 201 West Center Court Schaumburg, IL 60196
Invited to Attend:	IDOT, Stantec, CBBEL

Agenda:

I. Introductions

II. Project Objectives & Design Parameters
   - Freeboard, conveyance, pump station operations

III. Project Constraints
   - Median vs. south ROW, PESA/PSI, constructability, MOT

IV. Concept Alternatives and Preliminary Cost Estimates

V. Alternative Selection

IDOT Hydraulics Coordination Meeting Summary

Date:	September 15, 2016
Time:	9:00 AM
Location:	IDOT Materials Conference Room 201 West Center Court Schaumburg, IL 60196
Attendees:	See Sign-in Sheet

1. The meeting commenced at 9:05 AM.
2. The goal of the meeting was to determine which proposed alternatives should be carried forward to detailed analysis in the pump station hydraulic report (HR).
3. The meeting opened with discussion of the issues with the existing pump station and main drain, including:
    a. insufficient freeboard (the calculated existing conditions 100-year water surface elevation (WSE) is above the low rim in the sag),
    b. lack of a standby pump, as all four installed pumps run during large storm events, and
    c. insufficient conveyance capacity for the 50-year flow in the main drain (hydraulic grade line (HGL) above the top of the pipe).
4. CBBEL was asked to determine the 50-year freeboard for the existing condition with only three pumps running.
5. The following design parameters for the proposed condition, including added impervious area due to median paving, were agreed upon:
    a. Provide 0.0' of freeboard to the edge of pavement (EOP) in the sag for the 100-year event and a minimum of 2' of freeboard for the 50-year storm event. There is no need to provide greater 100-year EOP protection. (For preliminary analysis purposes, provision of 0.5' freeboard for the 100-year design is used for some alternates rather than to the exact low edge of pavement.)
    b. Reconfigure the pump station to operate with three pumps running and one standby pump.
    c. Conveyance/HGL in the existing main drain is no longer a design consideration.
6. Project constraints include concerns about underground construction based on the PESA. The PESA document identifies Recognized Environmental Conditions (RECs) along this section of I-55 such that Phase II testing is likely to be required for any of the proposed additional storage pipe/vault options whether in the median or south ROW.
7. Discussion of constructability and maintenance of traffic (MOT) centered on pipe boring/jacking and the required launching and receiving pits. At this time, it appears construction of the median area will

need to be completed in one construction season for the entire length of I-55. As such, concern was expressed regarding the adverse schedule implications with constructing a deep pipe in the median.

8. CBBEL offered that the proposed length of pipe can be shortened to start just east of the eastern RR bridge, since the overall main drain conveyance is no longer a design parameter. The relative size of the pits compared to the available space in the median and shoulder was discussed, as were other constraints such as RR bridge foundations and sign supports in the median. IDOT expressed concern about unknown utilities in the south ROW.
9. Discussion moved to the proposed alternatives that have been analyzed at a concept level using XP-SWMM. These earlier alternatives include downstream storage and conveyance options. Earlier alternatives also include replacing the existing pumps with upsized pumps. An alternative for intercepting off site flow from the RR yard north of I-55 was also considered. For reasons including cost and constructability, the above-mentioned earlier alternatives were not selected. Of the remaining alternatives for improved upstream storage and conveyance, some can be tweaked to meet the design parameters. The remaining alternatives include a new conveyance/storage pipe located in the median, as well as storage/conveyance options in the south ROW.
10. Construction of a concrete storage vault near the pump station will require structural review, which will add time to the schedule. Junction chambers to interconnect a proposed pipe to the existing main drain will also likely require structural review.
11. IDOT stated that they have recently installed pump station storage vaults, including a 4.2 AF vault located near the Dan Ryan south leg of the Circle Interchange, as well as one at Ohio Street near the Kennedy.
12. CBBEL will prepare optimized XP-SWMM analyses for the three finalist alternatives listed below. The finalist alternatives will be sized for only 3 of the existing pumps running. The finalist alternatives are:
    a. Median pipe (estimated at approx. 84" RCP) from east of the eastern RR bridge to upstream of the pump station, with interconnections to existing main drain in the median. Assumed to be jacked/bored. Provides both storage and conveyance.
    b. Concrete storage vault located near the pump station in the S. ROW, connected to the existing 60" main drain. Provides storage only.
    c. South ROW Pipe (estimated at approx. 84" RCP) from east of the eastern RR bridge to upstream of the pump station. IDOT stressed that this pipe should be connected to the existing 60" main drain at both the upstream and downstream ends. Requires jacking/boring of one pipe under the NB pavement to connect to the existing main drain near the eastern RR bridge, perhaps at a higher elevation. Additional MHs will be installed at approximately 500' intervals for maintenance access. Provides storage and some conveyance.
13. CBBEL will investigate optimization of the 3 existing pumps with 1 standby pump operations. IDOT Hydraulics will coordinate review of the pump operations with IDOT Electrical.
14. CBBEL will provide a final alternatives spreadsheet to IDOT summarizing the layout, freeboard, and estimated construction costs for each, for IDOT to review and confirm the final selected alternative.
15. Stantec will assist with cost estimates. Stantec recently designed an 84" jacked pipe under the Tri-State, and also has costs available from Pump Station 24.

16. CBBEL will prepare detailed mass-curve routing for only the final selected alternative.
17. It is anticipated that the HR for PS 30 will be prepared with the median pipe alternative being the final selected alternative. The other 2 finalist alternatives will be included in the HR as hydraulically equivalent alternatives within the south ROW. These can be considered further if required due to MOT and construction schedule requirements. These other finalist alternatives will be presented at the concept (XP-SWMM) level to confirm storage volume and HGL. The other considered but discarded alternatives will be discussed in the HR narrative without providing analyses.
18. Stantec will incorporate the final selected alternative into the PDP and Location Drainage Study.

Action Items are described in Items 4 and 12 through 18 above.

The meeting adjourned at 10:20 AM.

The foregoing is considered to be a true and accurate record of all items discussed.

Prepared by:
Ilene Dailey
Project Manager, CBBEL
Phone: (847) 823-0500
idailey@cbbel.com

Stantec

Sign-In Sheet

Project: I-55 Phase I Managed Lane Study

Time: 9:00 am

Location: IDOT – District 1
Materials Conference Room

Date: September 15, 2016

Reference: I-55 Pump Station #30 – Project Coordination

	Name (Please print)	Representing	Phone Number	Email
1.	Dustin Book DJB	Stantec	(312) 262-2233	dustin.book@stantec.com
2.	Ilene Dailey	CBBEL	847-823-0500	idailey@cbbel.com
3.	MIKE MATKOVIC	CBBEL	"	MMATKOVIC@CBBEL.COM
4.	Corey Smith	IDOT	847-705-5188	corey.smith@illinois.gov
5.	AGAR SHIRANI	IDOT	847-705-4765	AGAR.SHIRANI@ILLINOIS.GOV
6.	ESTHER WINOGRAD	IDOT	847/705-4475	esther.winograd@illinois.gov
7.	Rick Wojcik	IDOT	847 705-4105	Rick.wojcik@illinois.gov
8.	John Chollman	Stantec	312-262-2921	john.chollman@stantec.com
9.	JOHN BALDAVF	IDOT	847.705.4113	JOHN.BALDAVF@ILLINOIS.GOV
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

CORRESPONDENCE:
STANDBY PUMP

Ilene Dailey

From: Winograd, Esther B <Esther.Winograd@illinois.gov>
Sent: Monday, March 14, 2016 9:01 AM
To: Ilene Dailey
Subject: FW: I-55 pump station # 30

Please include in the hydraulic report correspondence section.
Thanks

Esther Winograd
Hydraulic Section
Bureau of programming
IDOT-DOH
201 West Center Court,
Schaumburg, IL 60196-1096
tel; 847/705-4475

From: Gholeh, Naser M
Sent: Sunday, March 13, 2016 3:48 PM
To: Winograd, Esther B
Cc: Zenki, Omar
Subject: RE: I-55 pump station # 30

Esther,

The SCADA system is the primary controller which overrides the backup hard wired controls, the Standby pump is programmed to be called at a set point elevation as indicated on the SCADA pump controls.

However if the SCADA system fail, the hard wired system which is a backup control of pump operation will prevent a standby pump coming online unless there is a main pump failure.

Thank You

From: Winograd, Esther B
Sent: Thursday, March 03, 2016 1:30 PM
To: Gholeh, Naser M
Cc: Zenki, Omar
Subject: RE: I-55 pump station # 30

Naser- can you verify if, at pump station # 30, the standby pump is wired such that it will start at a higher water elevation even when all other pumps are working?
We need this info for our pump station hydraulic report and analyses.
Thanks

Esther Winograd
847/705-4475

CORRESPONDENCE:
PUMP STATION
CONTROL ELEVATIONS

David E. Vogel

From: Winograd, Esther B <Esther.Winograd@illinois.gov>
Sent: Wednesday, June 05, 2013 2:08 PM
To: 'dvogel@cbbel.com'
Subject: FW: Pump Station #30 information-control elevations and plans
Attachments: Pump Station 30 Control Elevations.docx; PS30_0.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

David - Attached are control elevations and plans for the subject pump station.
Please also read the email below.
This information should be incorporated in the report.

Thanks

Esther Winograd
Hydraulic Section
Bureau of programming
IDOT-DOH
201 West Center Court,
Schaumburg, IL 60196-1096
tel; 847/705-4475

From: Vanderbilt, Daniel L
Sent: Wednesday, June 05, 2013 9:13 AM
To: Winograd, Esther B
Cc: Gholeh, Naser M
Subject: Pump Station #30 information-control elevations

Esther,

Naser ask me to provide you with some pump station #30 information. I have attached the control elevation information sheet to this E-Mail.

Location : Stevenson Expressway (I-55)and Kedzie Ave in Chicago.
The stations rated capacity is 39900 GPM.
It is a wet pit type station and the square footage is 809. 13,300 GPM
There is two source of electric power.
See attached for center line of inflow.
The main pumps are Flygt model # 3551 170 HP 1330 GPM. This year capacity test all main tested at approx 15000 GPM.
The low flow pump is a Yeomans model# X32OTY 50HP 2700 GPM This year capacity tested at approx 3000 GPM.

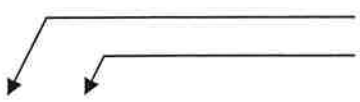
Please let me know if you need any other information no sure what you are looking for.
Dan Vanderbilt

Pump Station Technician
Phone 708-524-2145

Cell 847-652-1882
Daniel.Vanderbilt@illinois.gov

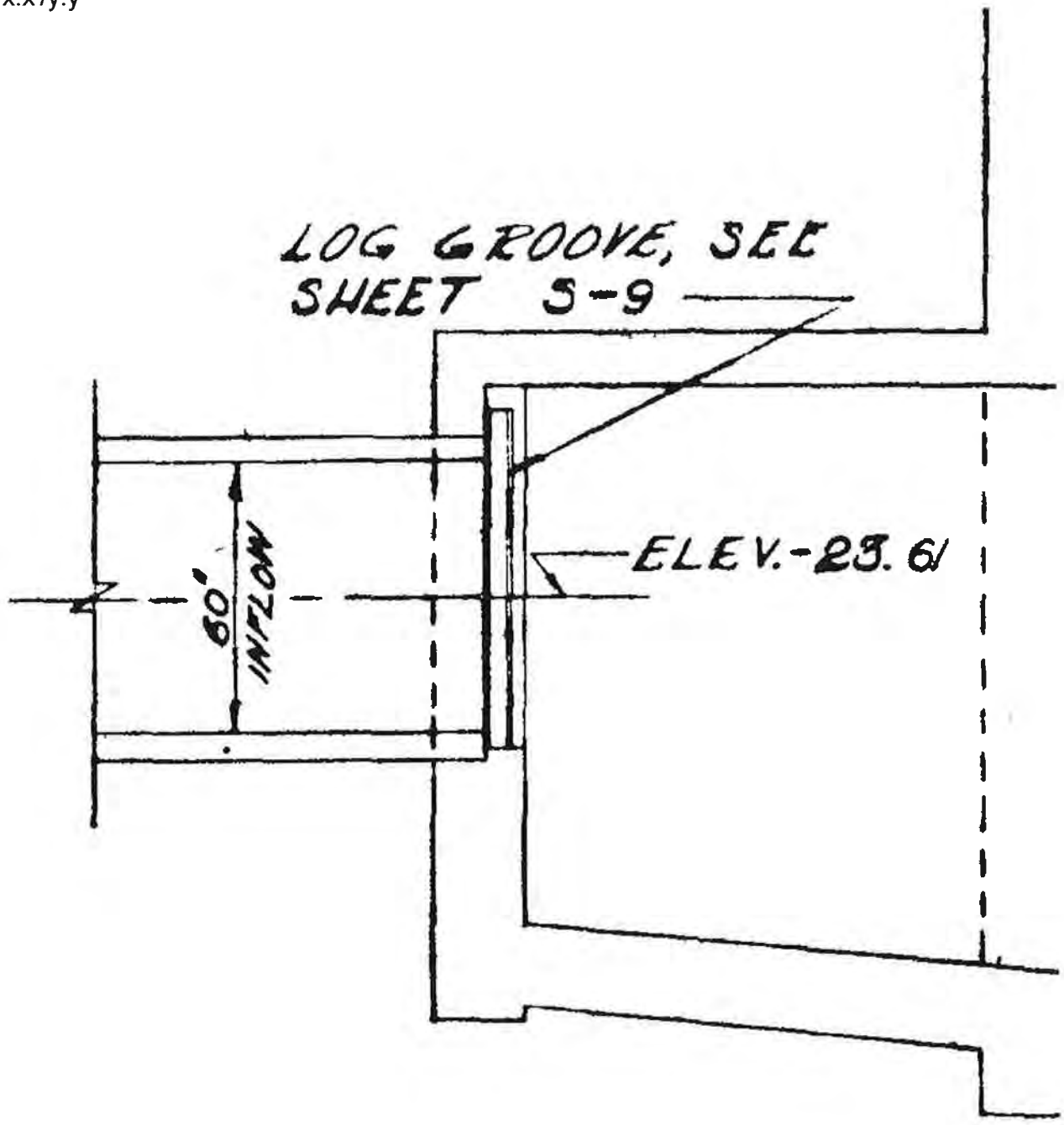
Pump Station 30 Control Elevations

	SCADA	Float
Top of Grade Floor Slab (9.75'/47.25')		
Top of Discharge Floor Slab (-2.25'/35.25')		
Top of Upper Intermediate Floor Slab (-4.0'/33.5')		
Stevenson Expressway Lowpoint (@ RR crossing East of Pulaski Rd) (-9.75'/27.75')		
Top of Lower Intermediate Floor Slab (-18.0'/19.5')		
High Water Alarm	-20.5'/17.0'	-20.5'/17.0'
Start Stand-By Pump	-22.0'/15.5'	-21.5'/16.0'
Start Lag 2 Pump	-23.0'/14.5'	-22.5'/15.0'
Start Lag 1 Pump	-24.0'/13.5'	-23.5'/14.0'
Start Lead Pump (Mixers/Low Flow Pump Off when Rising Water)	-25.0'/12.5'	-24.5'/13.0'
Start Mixers	-26.7'/10.8'	-26.5'/11.0'
Stop Main Pumps/Mixers (Low Flow Pump On when Falling Water)	-29.5'/8.0'	-29.4'/8.1'
Standby Pump Stop	-31.5'/6.0'	-29.7'/8.1'
Start Low Flow Pump	-29.5'/8.0'	-29.0'/8.5'
Inflow Invert (-26.11'/11.39')		
Stop Low Flow Pump	-30.5'/7.0'	-30.1'/7.4'
Low Level Alarm	-31.5'/6.0'	-31.0'/6.5'
Bottom of Wet Pit @ Pump Intakes (-33.5/4.0') (slopes to -33.83.'/3.67' @ top of sump)		
Bottom of Wet Pit Sump (-37.5/0.0')		



Elevation as referenced on drawings
Feet of water in wet pit.

x.x'/y.y'



★ EL 588.0 = 0.0

Pump Station 30 Control Elevations

SCADA ~~Float~~

Top of Grade Floor Slab (9.75'/47.25')

Top of Discharge Floor Slab (-2.25'/35.25')

Top of Upper Intermediate Floor Slab (-4.0'/33.5')

Stevenson Expressway Lowpoint (@ RR crossing East of Pulaski Rd) (-9.75'/27.75')

Top of Lower Intermediate Floor Slab (-18.0'/19.5')

	ELEVATION (NAD88)		
High Water Alarm	567.2	-20.5'/17.0'	-20.5'/17.0'
Start Stand-By Pump	565.7	-22.0'/15.5'	-21.5'/16.0'
Start Lag 2 Pump	564.7	-23.0'/14.5'	-22.5'/15.0'
Start Lag 1 Pump	563.7	-24.0'/13.5'	-23.5'/14.0'
Start Lead Pump (Mixers/Low Flow Pump Off when Rising Water)	562.7	-25.0'/12.5'	-24.5'/13.0'
Start Mixers	561.0	-26.7'/10.8'	-26.5'/11.0'
Stop Main Pumps/Mixers (Low Flow Pump On when Falling Water)	558.2	-29.5'/8.0'	-29.4'/8.1'
Standby Pump Stop	556.2	-31.5'/6.0'	-29.7'/8.1'
Start Low Flow Pump	558.2	-29.5'/8.0'	-29.0'/8.5'

Inflow Invert (-26.11'/11.39')

Stop Low Flow Pump	557.2	-30.5'/7.0'	-30.1'/7.4'
Low Level Alarm	556.2	-31.5'/6.0'	-31.0'/6.5'

Bottom of Wet Pit @ Pump Intakes (-33.5/4.0') (slopes to -33.83.'/3.67' @ top of sump)

Bottom of Wet Pit Sump (-37.5/0.0') 550.2

Elevation as referenced on drawings
Feet of water in wet pit.

CORRESPONDENCE:
PUMP MANUFACTURER DATA

Joseph F. Marino

From: McMahon, Shannon - Xylem <Shannon.McMahon@Xyleminc.com>
Sent: Thursday, July 18, 2013 3:47 PM
To: jmarino@cbbel.com
Subject: RE: IDOT PS 30
Attachments: idot1021.pdf; idot1022.pdf; idot1092.pdf; idot1093.pdf; idot1020.pdf

Hi Joe,
See attached factory test curves. Here is all of the information I have on the pumps in that lift station.
Let me know if you need anything else.
Thanks!

1403531000027G	3
CP3531/775FM CODE 1040 170HP	EA
460V/3P W/50'CABLES	
S/N:0031020 D/N 238462	
S/N:0031021 D/N 238462	
S/N:0031022 D/N 238462	
1403531000027G	2
CP3531/775FM CODE 1040 170HP	EA
460V/3P W/50'CABLES	
S/N:0031092 D/N 238462	
S/N:0031093 D/N 238462	

Shannon McMahon
Municipal Sales
O: (708) 342-0484
M: (708) 990-4919
FLYGT
a xylem brand

From: Joseph F. Marino [mailto:jmarino@cbbel.com]
Sent: Tuesday, July 16, 2013 2:25 PM
To: McMahon, Shannon - Xylem
Subject: IDOT PS 30

Shannon,

I'm following up on my phone call earlier in case I talked a bit too fast.
Here's the information I have:
IDOT PS30 – Homan Ave PS off I-55
Flygt model #3551
170 Hp
13,300 gpm

Propeller/axial style pump
24" discharge
36 ft of static lift

Can you find me any info (catalog info, curves, shop dwgs)

Thank you,

Joseph F. Marino, PE
Christopher B. Burke Engineering, Ltd.
9575 W. Higgins Road, Suite 600 Rosemont, IL 60018
Phone: (847) 823-0500 Fax: (847) 939-5214
E-Mail: jmarino@cbbel.com

CORRESPONDENCE:
FLOODING REPORTS

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
AT ASHLAND AVENUE (ENT. RAMP)	12/04/99																
AT ASHLAND AVENUE (EXIT RAMP)	08/02/01	07/15/03	07/06/04														
AT BNSF RR - LL																	
AT CALIFORNIA AVE.	08/17/97	05/13/05	03/08/09	05/25/11													
AT CANAL STREET (LANE 3)	11/15/88	02/21/97															
AT CASS AVENUE	07/20/90	06/07/93	7/17/96														
AT CENTRAL AVENUE TO HARLEM AVENUE (SWB)	08/09/03																
AT CENTRAL PARK (BY BNSF VIADUCT)	06/04/11																
AT CHINATOWN FEEDER (NEAR 25TH ST)	08/24/93																
AT CICERO	10/29/09	10/30/09	05/25/11														
AT CICERO ENTRANCE RAMP (NE)	10/03/06																
AT CICERO ENTRANCE RAMP (SW)	10/03/06	07/11/09	12/8/97						10/17/88								
AT COUNTY LINE ROAD	06/07/93													10/06/98	08/07/98	07/03/98	01/22/99
AT DAMEN AVENUE	03/24/88	03/28/88	04/23/88	05/23/88	07/25/88	08/08/88	11/04/88	~~11/17/88~~	06/01/89	07/11/89	08/19/91	06/26/93	07/18/93	08/25/93	08/15/93	09/07/96	12/06/98
AT DES PLAINES RIVER	05/09/95	12/04/95	04/16/00	05/28/00													
AT EXITS TO ILLINOIS ROUTE 59	10/13/01	05/11/02															
AT FRONTAGE ROAD E/O IL 83	02/06/08																
AT HOMAN AVENUE	~~11/12/91~~																
AT ILLINOIS ROUTE 53 (N/O)	12/26/08																
AT ILLINOIS ROUTE 83 EXIT SB	07/20/90	06/07/93	08/11/94	07/17/96	~~07/19/96~~	10/04/01	07/21/03										
AT ILLINOIS ROUTE 171 (1ST AVENUE)	12/08/91	07/18/96	09/07/98	05/28/00	06/07/05												
AT INTERSTATE ROUTE 90/94 (RYAN)	09/01/89	~~06/18/92~~	11/13/00	05/13/05	8/7/98	7/3/98											
AT JOILET ROAD VIADUCT	10/17/88	07/18/89	08/12/89	09/01/89	07/20/90	08/11/94	07/30/96	07/17/96	~~08/04/97~~	~~06/25/98~~	05/08/00	02/08/01	06/10/04	08/28/04	04/12/05	10/03/06	01/04/07
AT LEMONT ROAD TO INTERSTATE 355	06/07/93	~~06/08/93~~	07/18/96	06/17/96	07/19/96	05/09/00	03/13/06	11/30/00	07/26/07	10/30/09							
AT LOCKE AND LOOMIS (S.B.S.F. Chicago River)	01/22/99	04/09/99															
AT MADISON STREET (N/O)	08/28/04																
AT PULASKI ROAD	06/23/10	05/25/11															
AT PULASKI ROAD TO CICERO AVENUE	05/25/11								11/3/88								
AT PULASKI ROAD TO KEDZIE AVENUE	09/01/89	08/08/91	12/08/91	07/18/93	06/08/93	~~06/09/93~~	01/22/99	11/09/00	06/10/02	~~11/29/06~~	07/04/07	12/24/08	02/26/09	03/07/09	03/08/09	05/26/09	
AT STATE STREET	03/24/88	06/24/94															
AT U.S. ROUTE 45 (LA GRANGE ROAD)	06/07/93	05/23/96	11/10/95	06/01/99	04/16/99	05/23/99	06/10/02	08/10/06	10/26/06	01/04/07	05/11/10	04/01/11	5/26/09				
AT WESTERN AVENUE	08/19/95																
AT WOLF ROAD	06/07/93																

I-55 (Stevenson Expressway)
At Pulaski Road to Kedzie Avenue

T S/DATE RECEIVED: 4:47pm 11/9/88	INFORMANT: Dist 4 State Police (hotline)
S BJECT: Hazzardous Flooding.	
I CATION NEB I-55 between Pulaski & Kedzie.	

DETAILS & NOTIFICATIONS:

4:47pm Control was notified of the above,
4:50pm Control notified Mr.Smetana at his residence from Stevenson Yard, He advised that he will take care of it.

8:09pm RC# 685 advised control flooding condition was taken care of, also NEB Damen was cleared of water accumulation. (JMS)

VEHICLE INFORMATION:	VEHICLE PRESENT Y/N:	
DRIVER/OWNER NAME:	PLATE #	STATE
ADDRESS:	CITY:	STATE
LOAD/WEIGHT OF TRUCK:		
ACCIDENT REPORT/OFFICER #:	VERIFIED:	
ELECTRICAL MAINTENANCE CONTRACTOR #:		

COMMUNICATIONS SPECIALIST(S) BELMONT	COPIES SENT TO: MR.KOSTUR, MR.SCHROEDER	INCIDENT REPORT NO. 88 3578

LMS 9/88

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE MAINTENANCE ROUTINE/FLOODING/ICING
OPERATIONS AND COMMUNICATIONS CENTER

ICING [ ] FLOODING [X] DATE: FRIDAY DAY: 9/1/89 ROUTINE [ ]

SP	TIME REC'D	INFORMANT	LOCATION	INCIDENT	CONTACTED	TIME	VERIFIED (NAME)	TIME/ DATE	DISP
✓	4:01 A	SP #5 BALZINSKI	I-55 + JOLIET RD SB XIT	FLOODING BARRICADED	DIST #5 STATE	5:02 AM	OPEN	6:30 A 9/1	UJD
~~T~~	~~5:00 AM~~	~~RC 302 Covington~~	~~E of Potter~~ Dempster	2 Right Lanes flooded	DUPLICATE				
✓	4:30 A	STATE POLICE #5	SB 53 AT LEWIS UNIVERSITY				SMIEGELSKI JOLIET YD	8:55 AM 9-1-89	[illegible]
✓	9:30 A	CITIZEN	SB EXIT @ KEDZIE, off of STEVENSON EXP.	FLOODING	RC 481	10:09 A	RC 704	10:52 A 9/1	JK
M	2:58 P	Citizen	Rt 12 n/o Rt 173 East side	Flooding on Private Property	Woodstock (Parisi)	2:59 P			
M	3:46 P	Village of Palatine #Chris	SB Rand n/o Quentin	Flooding	Arlington Hts (Dimilio)	3:48 P	RC 394	4:48 P 9-1-89	SEM

KOSTUR
SCHROEDER (ICING/FLOODING ONLY)

STATE OF ILLINOIS DISTRICT 1 OPERATIONS COMMUNICATIONS CENTER
DEPARTMENT OF TRANSPORTATION FLOODING REPORT

DATE: 08 Aug 91 DAY: Thursday PAGE 1 OF

ITEM #	DISP	INFORMANT TIME REC'D	DIR	LOCATION	LANE #S	EST. DEPTH	PASSABLE (Y or N)	CONTACTED	TIME	DURATION OF CLOSURE	VERIFIED (NAME)	TIME/DATE DISP
A	10	0550 Ø	NE	Stevenson Damen/Ashland	Ramp	?	Y	Chic Dikki	0557	—	—	757a [illegible]
B	10	0550 Ø	SW	Stevenso Pulaski	Ramp	?	Y	"	"			700am [illegible]
C	Sam	[illegible] PD #36 706	All	RT 12 & 22	All	?	yes but very slowly	Gregory the Grays Lake	7:15			
D	[illegible]	711 [illegible]	SB	Central S/O Devon	1-2	?	Y	Charlie Northbrook	717	—	Charlie N.S.	8[illegible] 8-8[illegible]
E	Sam	RC 313	All	wolf & 58	Under Bridge	?	Y	Arlington Mike	7:40			
F	SAM	Dupage #299	All	York Between Lexington & 38	All	?	Y	Oak Brook Dave	7:48			
G	SAM	RC 624 8:00	All	Cicero at 3500 S	All	4 Feet	NO	Yard 620	804	2 1/2 hrs	RC 623 1030A	MTR 8/8/91 [illegible]
H	415	Dist 3 Cicero 807A	IB	I-55 & Mulligan	?		Y	Rick Ike	815AM			
I												
J												
K												

CC KLAFETA, KOWALSKI, MURZYN, KOSTUR

91 F - 00025

STATE OF ILLINOIS DISTRICT ONE OPERATIONS COMMUNICATION CENTER
DEPARTMENT OF TRANSPORTATION FLOODING REPORT

DATE: 12/8/91 DAY: Sunday PAGE 1 OF

ITEM #	DISP	INFORMANT TIME REC'D	DIR	LOCATION	LANE #S	EST. DEPTH	PASSABLE (Y or N)	CONTACTED	TIME	DURATION OF CLOSURE	VERIFIED (NAME)	TIME/DATE DISP
A	Rob	#608 1619 DuPage	NB	8300 BLK of Rt 53			NB NO	HESIK NAPERVILLE	1621	See IR#91-3429		
B	Rob	Cergo @1655 Forest View	NB	Harlen @ 48th Via Duct			NO	OWEN Hillside		See IR#91-3430		
C	AMR	ISP 40 1651	NB SB	Stevenson @ 1st			Y	Surdyk Stevenson	1656		RC685	1935/12-8 Rob
D	AMR	RC 962 1733	SW	Pulaski/Stevenson	3		Y	RC685	1733		RC685	1935 12-8 Rob
E	AMR	RC 962 1736	SW	Stevenson/Cicero exit			Y	RC685	1736		R685.	1935 12-8 ROB
F												
G												
H												
I												
J												
K												

CC KLAFETA,KOWALSKI,MURZYN,KOSTUR

91 F - 0004?

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DISTRICT ONE – OPERATIONS & COMMUNICATIONS CENTER

[redacted] DATE: 6 JUN 93 DAY: TUESDAY PAGE 1 OF

DISP. INIT.	INFORMANT/ TIME REC'D	DIRECTION & LOCATION	LANE #'s	EST. DEPTH	PASSABLE (YES/NO)	CONTACTED (WHO/TIME)	TIME CLOSED	VERIFIED (NAME)	TIME / DATE DISP. INIT.
MK	RC947 RAMELL 0741	NB DAN RYAN @ 83RD ALLIANCE	ALL	6"	YES	EDDIE DANRYAN 0844	NOTIFIED GEORGE IN R/O TO CHECK PUMP #21 @ 754A.	RC947	0850 6-8 MK
BF	RC 876 08:03	US 45 S/O F US 30	ALL	6 11	YES	RC 876 08:03		RC 876.	980A 6-8-93 BF
MJP	P:08 02 TROOPER	NB SS N OF MOKENA	RIGHT LANE	N/A	YES	I-55 8:11		MR. WOLOWICZ @ 1029A	1029A 6-8-93
MK	RC915 0849	SB DAN RYAN @ 91 RS	RL	?	YES	RC655 0850		RC915	0900 6-8 MK
MK	RC942 0905	SW ~~SB~~ STEVENSON EO/ PULASKI	LS	?	YES	KENNY/90 STEVENSON		685	9:15 6/8 MJP
MK	RC947 RAMELL 0906	SB I-57 @ WENTWORTH	RL RS		YES	TAYLOR I-57		RC743	0951 BF 6-8
	DIST 5 #8066 1109A	NB RT 1 1/4 N/O CORNING (IN BEECHER)		18".	YES	TOM 11:18 NEW LENOX		TOM	12:23 BF 6-9
"	"	NB/SB RT 59 @ R.R. UNDERPASS N/O RT 126. PLAINFIELD		1-1½	YES.	MEMENGA 11:20 JOLIET.	11:49		SEE TA 9 3 - 1258
	JOLIET SRD #3224 1129A	RT 102 @ RIVALS RD S/O WILMINGTON	?		YES.	RON 11:33 NEW LENOX		TOM	12:23 BF 6-9 BF
MK	ISP-3 1132	NW KENNEDY @ LAWRENCE & NW KENNEDY @ CENTRAL	RL	4" 4"	YES	ROY KENNEDY		TOM	12:26 BF 6-9

COPIES TO: MR. J. KOS, MR. MCDERMOTT, MR. MARCOTTE, MR. WANG, MR. SABOURIN.

TAKAHASHI 5/97 UPDATED 12/97

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DISTRICT ONE – OPERATIONS & COMMUNICATIONS CENTER

(3)

FLOODING

DATE: 7-18-93 DAY: Sunday PAGE OF

DISP. INIT.	INFORMANT/ TIME REC'D	DIRECTION & LOCATION	LANE #'s	EST. DEPTH	PASSABLE (YES/NO)	CONTACTED (WHO/TIME)	TIME CLOSED	VERIFIED (NAME)	TIME / DATE DISP. INIT.
AMR	1629 Grayslake	Rt 120-500 blk 83 @ Center	ID - 229 ID - 23			RC 242 @ 1645 Hertel	/	Hertel	1848 AMR 7-18-93
AMR	1640 Wauconda	176 @ Main EB/WB				RC 242 @ 1645		Hertel	1816 AMR 7-18-93
AMR	1657 Lake Co	137 E/O 83				RC 242 @ 1645		Hertel	1816 AMR 7-18-93
DLH	SPO 4 1705	SW I-55, w/o DAMEN	2 LT. LNS.	1'	NO	1717 PETRIE		RC #686	1923 DH 7/18/93
BF	STREETS + SAN 17:1[illegible]	NE - I55 @ PULASKI	?	?	(?)	RC 68[illegible] 17:27		RC #686	1845 DH 7/18/93

COPIES TO: MR. J. KOS, MR. MCDERMOTT, MR. MARCOTTE, MR. WANG, MR. SABOURIN.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER
FLOODING REPORT

*** FLOODING ***

DATE: 1-22-99 DAY: FRIDAY PAGE: 1 OF: 7

DISP INIT	INFORMANT TIME REC'D	LOCATION OF FLOODING CONDITION	LANE #'S	EST. DEPTH	PASSABLE (YES/NO)	CONTACTED (WHO/YD.)	TIME AM / PM	VERIFIED (NAME)	TIME/DATE & DISP.
BCT	ISP 1157P	NEB STEVENSON @ LOCKE	1+2	2"	YES	RC #701 Stevenson	1230A	1/24 1153am [illegible]	1/24 1257pm
BCT	ISP 1200A	NB BISHOP FORD @ 130th	1	2"	YES	RC #779 B Ford	1230A	Signs up 1264	[illegible] 313. [illegible]
FPR	OAK LAWN PD #53 1218A	SB PULASKI AT 104th R/L	2	8"	~~NO~~ YES	RC #738 alsip	1222A	Signs up 1264 1/24 [illegible] 1205 [illegible] DOWNS	441A 1/25 FPR
BCT	ISP-2 1214A	EB NORTH AVE RAMP TO EB I290	ALL	10"	NO	RC 465 Eisenhower ETA FOR BARRICADES?	1218A	SANDERS 1/24 1130am [illegible]	TURNED INTO I.R.
BCT	RC 914 1216A	NW KENNEDY TO EB OHIO	ALL	2"	YES	RC 384 Kennedy	1229A	1/24 [illegible]	TURNED INTO I.R.
BCT	CITY PD 1224	SW STEVENSON from PULASKI – KEDZIE	ALL		YES	RC 701 Stevenson	1230A	1/24 1138am all clear	1/24 1138am

COPIES TO: MR. TYSZKIEWICZ, JONAK, FITZGERALD, ELECTRICAL FIELD OFFICE, WANG 1999

ILLINOIS DEPARTMENT OF TRANSPORTATION DISTRICT 1
OPERATIONS AND COMMUNICATIONS CENTER INCIDENT REPORT

GRG

DATE:	DAY:	TIME: AM/PM	INFORMANT:
11/9/00	Thursday	1:19pm	Mr. Bomicino @ Edens Yard

SUBJECT: Flooding in a Construction Zone

LOCATION:	COUNTY:	LOAD AND WEIGHT:
NEB Stevenson @ Kedzie entrance	Cook	

*** PUBLIC/MEDIA EMERGENCY INFORMATION DISTRIBUTION***

CONGESTION LIMITS DUE TO INCIDENT:

HAR	CMS	CRT	DOT-INFO EXT#

SPRINGFIELD NOTIFIED (WHO/TIME) FAX TO SPFLD. (TIME)

DETAILS AND NOTIFICATIONS IN CHRONOLOGICAL ORDER

TIME (AM/PM)

Mr. Bomicino @ Edens Yard called in and advised Control that there is a foot-and-a-half of water at the bottom of the NEB Stevenson Kedzie entrance ramp.

1:21pm Control notified Laura @ Walsh Construction. She will get a couple of pumps out there and call back when completed.

(FPK)

3:33 PM RC#935 (Monterubio) called Control advising of the above flooding condition.

3:35 PM Control spoke with Laura at Walsh Construction. She stated that Knight Engineering has to authorize Walsh for any work to be done.

3:36 PM Control spoke with Dennis at Knight Engineering in regards to the above. He stated RE Ahmad Karim advised them they had to authorize work through Karim first befor doing anything. Dennis advised that he sent his own people out, who cleared some leaves off the sewer grate, which water began to recede. Control updated him one the report from the ETP driver. Dennis advised that he will go and check the location again. Control requested a call back.

3:38 PM Control tried Karim at field office, answering machine.

3:39 PM Control paged Karim.

3:57 PM Control sent second page to Karim.

4:00 PM Ahmad Karim called Control and advised of the above. They did not do any construction this year on the ramp due to the Damen Ave work from the city. Karim advised that should be maintenance's responsibility, and Control advised him of previous responses that they did not accept back maintenance. Karim stated the problem is under Kedzie Ave somewhere, and until they open up the pavement, there is nothing they can do. The water will go down, just slowly. Karim stated

VEHICLE INFO:	PLATE #	STATE:
DRIVER / OWNER NAME:	TRAILER PLATE#	STATE:
ADDRESS:	CITY:	STATE:
PD / ACCIDENT RPT. #	E.M.C. #	

COMMERCIAL M.C.S. (METAL COILS)#:

VERIFIED DATE: TIME: AM/PM NAME: SPECIALIST (INT):

COPIES SENT TO:	OP. COM. SPECIALIST(S)
Fitzgerald, Tyszkiewicz, Jonak, Vaitla, Wang, Rollings, Dinkheller	AMD
	INCIDENT REPORT #
	00- 4111

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER

*** FLOODING ***

DATE: 6-10-02 DAY: MON PAGE: / OF:

DISP INIT	INFORMANT TIME REC'D	LOCATION OF FLOODING CONDITION	LANE #S	EST. DEPTH	PASSABLE (YES/NO)	CONTACTED (WHO/YD.)	TIME AM / PM	VERIFIED (NAME)	TIME/DATE & DISP.
BF	FORESTVIEW 51 742P	48 TH AND HARLEM	ALL	1'	?	RENDON HILLSIDE	743P	RC 624 WOP SIGN	829/6/10/02 GMW
GMW	ELMHURST *96 743P	83 AND ST CHARLES SB	2	1'	?	INCAVO OAKBROOK	744P	RC 587	9.08pm 6-10-02
BF	CICERO GREG 878P	CICERO @ 40	?	?	?	RC624	840P	RC624	921P 6-10 BF
BF	JEFF @ TSC 845P	SW I55 US 45 EXIT CD RAMP	CD RAMP	6"	Y	PETRIE	900P		RC 682 1030P BF
BF	SUMIT 915P	ARCHER @ 63 ST	ALL	3'	?	RC624	920P		1R 02 1847
DAT	TITO (ETP) 9:18	Stevenson N/E N/O Pleski (RR Bridge)	3		Yes	RC 682	9:21P	682	10:14P 6/10 DW
DAT	RC1801 1030P Kolenko	IL 43 SB 47rd ST.	2	6"	Yes	Rendon	1103P	627 Signs out	11:18P 6/10 DW

COPIES TO: FITZGERALD, JONAK, TYSZKIEWICZ, VAITLA, WANG. 2002

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER

*** FLOODING ***

DATE: 7/4/07 DAY: Wednesday PAGE: OF:

DISP INIT	INFORMANT TIME REC'D	LOCATION OF FLOODING CONDITION	LANE #'S	EST. DEPTH	PASSABLE (YES/NO)	PUMP STATION? NOTIFY ELEC. CONT.- NAME,COMPANY,TIME	MAINT. NOTIFIED YARD,PERSON,TIME	VERIFIED (NAME)	TIME/DATE & DISP.
LR	RC904 2:31A	SB BF 994 Tunnel		2ft	Yes	RC943 Butter Open Sewer	Bishop Ford - Am ✓	RC943	3:56A 7/5 (MA)
LR	RC925 2:22A	SW Pulaski LN3	#LN 3	UNK	Yes		Stevenson Am ✓ Non Emerg	RC969	4:24A 7/5 (MA)

COPIES TO: FITZGERALD, IACULLO, STUMPNER, VAITLA, WOJCIK.

2007

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER

*** FLOODING ***

DATE: 12-24-2008 DAY: Wed PAGE: OF:

DISP.INIT. / TIME	INFORMANT / NAME OR #	LOCATION OF FLOODING CONDITION	LANE #S	EST. DEPTH	PASSABLE (YES / NO)	PUMP STATION / YES CONT.NAME / TIME	MAINT. NOTIFIED NAME / TIME	VERIFICATIONS NAME / TIME	VERIFICATIONS INIT / DATE
3:20Ar	Matteson #869	EB US 30 @ E/O Governors RS	None	unk	Yes		C802 3:20A	Rumansia 1041	122608
" "	" "	WEB Governors @ EJ&E RR RS	" "	" "	Yes			Rumansia 1048	122608
" "	" "	Governors @ old Plank RS	" "	" "	Yes			Rumansia 1048	122608
7:20A	ISP	NE Stevenson @ Pulaski L1					Jack Neven 7:20A Stevenson Yard	1022P	122608
7:20A	ISP	NB I57 @ Sauk Trail L1					I-57 7:20A Bob Pettis	122608	1023P
DAT 9:30a	ISP Desk	SWB Stevenson btwn 8700 W. + LaGrange	3	unk	Yes		Stevenson Yehulon	Steve 122608	1022P
PK 934	Willowsprings Linda	Willowsprings Rd @ RR overpass btwn 83rd & Archer	2	unk	Yes		Hillside - Frank 941A	RON 122608	1047P
PK 952	Indian Head Pk Ed	Joliet Rd btwn W/E & Willow Springs Rd	2	unk	Yes		Hillside Jesse 1000A	RON 122608	1047P

COPIES TO: FITZGERALD, IACULLO, STUMPNER, VAITLA, WOJCIK. 2008

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ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER

*** FLOODING ***

DATE: 2/26/09 DAY: Thur. PAGE: 3 OF: 5

DISP.INIT. / TIME	INFORMANT / NAME OR #	LOCATION OF FLOODING CONDITION	LANE #'S	EST DEPTH	PASSABLE (YES / NO)	PUMP STATION / YES CONT.NAME / TIME	MAINT. NOTIFIED NAME / TIME	VERIFICATIONS NAME / TIME	VERIFICATIONS INIT / DATE
JB 8:51p	River Grove #217	On Belmont btw River + Cumberland (NEAR FOREST PRESERVE LINE RD.)					Northside RC592	[illegible] 1127A	2-27-09 [illegible]
DAT 8:55P	[illegible] PD 124	EB 143rd St Jefferson - Swtz Hwy					Alsip RC713 8:58p	Spina 1:24P	2-27-09 HG
DAT 9:04P	RC 504	SB 83 S/of St Charles					RC504 - OBK 9:04p	Joe 1108A	22709 [illegible]
SKJ (DAT) 7:52p	Lindenhurst #10	IL 132 Grand MONN Monn - Deep Lake					Grs Lake Home - 8:09p	RC 242 WOPS-9:14p	2/27
DAT	OakForest	159th Cicero viaduct					Alsip RC713	RC713 1034p	SKJ 2-26
DAT (DAT)	RC 915	NW JFK To Ohio Feeder					JFK RC192	[illegible] 0770/3	[illegible] 3-09
JB 9:15P	RC 915	Stevenson B/D Pulaski					Santore 9:23p Stevenson	Jack 30309	[illegible] 1157A
JB 9:31P	RC 928 Gillian	EB 290 to SB Ryan					RC452 Eisenhower	Greg 30309	[illegible] 1157A
950 (Gurd)	DelAcqua	WB NORTH AVE / 171					RC 592 NORTHSIDE	RC592 110	SKJ 2.27
JB 9:59P	RC904 Berrios	B/D Kennedy @ Kimball int/exit					RC 192 9:59P	0770 3-03-09	1147A [illegible]

COPIES TO: FITZGERALD, IACULLO, STUMPNER, VAITLA, WOJCIK. **2009**

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ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER

*** FLOODING ***

DATE: 7 MAR 09 DAY: SAT PAGE: 1 OF:

DISP.INIT. / TIME	INFORMANT / NAME OR #	LOCATION OF FLOODING CONDITION	LANE #'S	EST. DEPTH	PASSABLE (YES / NO)	PUMP STATION / YES CONT.NAME / TIME	MAINT. NOTIFIED NAME / TIME	VERIFICATIONS NAME / TIME	VERIFICATIONS INIT / DATE
SJK 1019A	ANNE OAKBR PD	EB 22ND W OF YORK RT CURB	RT CURB	2IN	YES		HALL OAKBRK	RC502 1208P	SJK 3-7-09
SJK 1029A	RC 915 McHUGH	S D.R. LOCALS 31ST	2 LNS	6IN.	YES		GIACOMO D.R. YD	GIACOMO 158P	SJK 3.7.09
1039A SJK	RC915 McHUGH	S FEEDER 22ND D.R.	2 LNS	6IN.	YES		GIACOMO D.R. YD	GIACOMO 1580	SJK 3-7-09
SJK 1121	RC968 MALDONADO	IKE YD E-S UND HALSTED	2 LNS	6IN.	YES		PHILLIPS IKE YD	RC 456 1:19pm	[illegible] 3-7
[illegible] 12:13pm	RC968 MALDONADO	NW Kennedy @ Jefferson Park Tunnel	RL	10"	Yes	#23 Kurt Meade 12:14pm	Eric 12:16p Kennedy	RC198 212P	3-7-09 SJK
[illegible] 1:00pm	Lyons PD LJuke	WB 47th w/o Harlem	RL	3"	Yes		M. Sutton Hillside 1:01pm	RC634 244P	3-7-09 SJK
HG 4:40P	Lemont PD #126	BD Main St. E/O Walker		3"	Yes		Hannah Alsip 4:44P	715 740P	BF 3-7
JB 5:09p	RC932 Ramirez	SW Stevenson @ Pulaski ent			YES		M. Hartigan Stevenson	RC 684 Cego 735P	3-7-09 BF
BF 512P	PALOS PD 213	SW HWY @ 131 st	ALL	5"	Y		RC715 ALSIP	715 740P	3-7
HG 5:12P	Dolton PD #58	EB Sibley E/O Greenwood	All	3"	yes		(Harvey) Thompson 5:16P	RC 804 6:47P	HG 3-7-09

COPIES TO: FITZGERALD, IACULLO, STUMPNER, VAITLA, WOJCIK. 2009

S/SS/FORMS/DAILY/TREFIC BLT 03/21/02

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER

*** FLOODING *** DATE: 5 / 26 / 09 DAY: TUES PAGE: 1 OF:

TIME / DISP.INIT.	INFORMANT / NAME OR #	LOCATION OF FLOODING CONDITION	LANES - DEPTH PASSABLE? / NOTES	PS? Yes/no / Meade Name	PS# / TIME	YARD Freq. / NAME / RC#	TIME / INIT.	VERIFICATIONS: NAME / RC# / INTIALS	VERIFICATIONS: DATE / TIME / NOTES
SKJ	SHOREWOOD	EB Rt 52 @ BALTZ	1 - 12" Y (N)	Y (N)		EVANS -	SKJ	RC 854	5/26 - 9:54p
759	PD *402				:	JOLIET	820p	SKJ	W.D.P.S.
SKJ	ELMHURST	SB Rt 83, VIADUCT BTWN	N/A Y N	Y N		DESMOND -	SKJ	RC505	5/26 - 9:53p
808	PD *23	Rt 64 + St. CHARLES			:	OAKBROOK	835p	SKJ	W.D.P.S.
8:15	ISP 5	WB 80 @ CENTER	RL 3" Y (N)	Y (N)		NEW LENOX	8:58P	RC 876	5/26 - 1600
855	CHERYL				:	TOME		SKJ	UNFOUNDED
8:15	↓	SB 53 S OF HOFF	RL 4-5" .0 N	Y (N)		NEW LENOX	858	RC 876	5/26 - 11:13
855					:	TOME		SKJ	UNFOUNDED
9:07P	ISP-C 5	SW I-55 to NB	- Y (N)	Y N		Stevenson	9:40P	RC 622	5/26 - 10:58
HG	RC 935 (9:40P)	LaGrange (ramp)	4-6"		:	Reitz		BF	SIGNS
940	RC 935	SW I-55 @	- Y (N)	Y N		Stevenson	9:40P	RC 622	5/26 - 10:58
HG	Chapa	Pulaski entrance	4"		:	Reitz		BF	UNFOUNDED
:			- Y N	Y N		-	:		/ - :
					:				
:			- Y N	Y N		-	:		/ - :
					:				
:			- Y N	Y N		-	:		/ - :
					:				

COPIES TO: RIDGE, IACULLO, STUMPNER, GHOLEH, WOJCIK.

N - If not passable put on an IR Y - If there is a PS in area call Meade (IR if off Maint.)

2/27/2009

I-55 (Stevenson Expressway)
At Central Park (By BNSF Viaduct)

PAVT Flooding Incident Report 2011

Wojcik, Rick F

From: Gholeh, Naser M
Sent: Monday, June 06, 2011 1:49 PM
To: Wojcik, Rick F
Subject: FW: Expressway Incident Construction Zone - Standing Water - Stevenson at Central Park (FINAL)

Sorry I forgot to cc you.

From: Gholeh, Naser M
Sent: Monday, June 06, 2011 1:47 PM
To: Bermudez, Rene G; Meropolski, Roman L
Cc: Travia, Steve M; Iacullo, Carmen W; Stumpner, James A; Joynt, Eugene A; Vanderbilt, Daniel L
Subject: Expressway Incident Construction Zone - Standing Water - Stevenson at Central Park (FINAL)


IB I-55 at BNSF RR Viaduct-2.J...


OB I-55 at BNSF RR Viaduct-1.J...


OB I-55 At BNSF RR Viaduct.JPG...

Please take a look at the attached clogged inlets at the above location due to the accumulation of roadway and construction debris. The inlets need cleaning before the next rainstorm to avoid further flooding conditions. Some of the debris has made its way to the pumping station which requires cleaning.

We will have to schedule pumping station cleaning to minimize the damage and wear to the pumps. However, we will need a good effort to keep the debris from coming in to the pumping station. There is a huge amount of construction debris due to grinding of the pavement that needs to be swept and removed from the roadway. We can't afford downtime for pump repair or replacement, which takes too long.

Thank You

From: Thompson, David A
Sent: Saturday, June 04, 2011 6:34 PM
To: Thompson, David A; DOT.D1TSCIncident; GCMOperator; DOT.D1.TRF EXWY Section; DOT.D1.ELE-Executive Notification
Cc: Bermudez, Rene G; Meropolski, Roman L; Gholeh, Naser M
Subject: Expressway Incident Construction Zone - Standing Water - Stevenson at Central Park (FINAL)

Water has cleared, Contractor has responded.

From: Thompson, David A
Sent: Saturday, June 04, 2011 5:11 PM
To: D1TSCIncident (D1TSCIncident@dot.il.gov); 'GCMOperator (gcmoperator@gcmtravel.com)'; DOT.D1.TRF EXWY Section; DOT.D1.ELE-Executive Notification
Cc: Bermudez, Rene G; Meropolski, Roman L; Gholeh, Naser M
Subject: Expressway Incident Construction Zone - Standing Water - Stevenson at Central Park

Currently there is standing water (6 inches) on both directions of the Stevenson I 55 at Central Park (by BNSF Viaduct), ETP is on scene, Contractor (Plote) and Meade is en route

D. Andy Thompson
DOT District One ComCenter Supervisor
347-705-4602 Please reply to elecc@dot.il.gov

I-55 (Stevenson Expressway)
At Pulaski Road

Illinois Department of Transportation

Operations and Communications Center
District One - Incident Report

DATE: 06/23/2010 DAY: Wednesday TIME: 06:30 PM INFORMANT: RC 913 (McHugh -ETP Supervisor)

SUBJECT: Full Expressway Closure - Flooding

LOCATION: Stevenson I-55 East of Pulaski COUNTY: Cook

PUBLIC/MEDIA EMERGENCY INFORMATION DISTRIBUTION

CONGESTION LIMITS DUE TO INCIDENT:

HAR: CMS: CRT: DOT-INFO EXT#

SPRINGFIELD NOTIFIED (WHO/TIME): FAX TO SPFLD. (TIME):

DETAILS AND NOTIFICATIONS IN CHRONOLOGICAL ORDER

6/23/2010

6:30 PM	DAT	Mr. McHugh (ETP Supervisor) requested the Stevenson Yard be called out for flooding issue on Stevenson near Central Park (East of Pulaski)
6:34 PM	DAT	Mr. Gale (Stevenson LW) was informed of request for response.
7:15 PM	DAT	Mr. Neven (Stevenson Tech.) is aware of issue and is en route.
7:55 PM	DAT	TSC (Courtney) was informed of the closure and messages on the DMS signs were requested.
9:03 PM	DAT	The Southwest Stevenson is now blocked from Lake Shore Drive to Pulaski. Ramps form Lake Shore Drive and King Dr. are being blocked by Chicago Police and the ramps from the Dan Ryan to the Stevenson are blocked by ETP units.
9:15 PM	DAT	DMS signs are being updated to reflect the closure from the Ryan to the Stevenson.
9:23 PM	DAT	An emergency message was placed on the HAR.
9:25 PM	DAT	Meade reported multiple Pump Stations are without power from ComEd including Pump Station # 30. RFW
9:28 PM	DAT	Mr. Iacullo called about the Pump Station # 30 issue and requested a call from Mr. Gholeh.
9:30 PM	DAT	The following ETP Units are assisting in the operation, RC 935 Berrios, RC 967 Escamilla, RC 927 Hughes, RC 940 Piwceicz, RC 928 Hollins, RC 938 Tomas, and RC 969 Dehoyes.
9:33 PM	DAT	Jim Balo (Meade) has been en route for 2+ hours and is still not on scene, very heavy traffic in area.
9:55 PM	DAT	RC 913 informed the NEB Closure has moved back to NEB Harlem IL 53 Exit as there is a wide spread power outage affecting the City streets off the Stevenson.
11:27 PM	DAT	Received an update from Jim Balo at Pump Station #30, They are installing a small generator for lighting, a large generator is en route to run the pumps, an ETA of 2 + hours if expected. Naser Gholeh is also on scene and confirmed information. The generator is being rented from Patton.

6/24/2010

5:02 AM	GH	RC 681 informs that all ramps are open.
5:12 AM	GH	Station One - Springfield (Tim) informed of the reopening.

VEHICLE INFO:

DRIVER / OWNER NAME: PLATE #: STATE:

ADDRESS: TRAILER PLATE #: STATE:

PD / ACCIDENT RPT. #: CITY: STATE:

COMMERCIAL M.C.S. (METAL COILS)#: E.M.C. #:

VERIFIED DATE: 6/24/2010 TIME: 5:02:00 AM NAME: RC 681 SPECIALIST (INT): GH

DISTRIBUTED TO:	ADD'L COPIES TO:	OP. COM. SPEC(S):	INCIDENT REPORT #:
	Ms. Ridge, Mr. Travia, Mr. Stumpner, Mr. Schivarelli, Mr. Wojcik, Mr. Galas	DAT	10-1935

DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER

*** FLOODING ***

DATE: 25 MAY 2011 DAY: WED PAGE: 1 OF:

TIME DISP.INIT.	INFORMANT / NAME OR #	LOCATION OF FLOODING CONDITION	LANES - DEPTH NOTES	PASSABLE?	PS? Yes/no Meade Name	PS# TIME	YARD NAME / RC#	Freq.	TIME INIT.	VERIFICATIONS NAME / RC# INTIALS	VERIFICATIONS DATE / TIME NOTES
8:19 SJK	ANGELA - FRANKFORT P.D.	BD LAGRANGE & CNN RR X, FRANKFORT	- ALL LANES	(Y) N	Y (N)	:	MIGUEL NEW LENOX	-	8:22 SJK	DMC	5127-13:57 DMS
8:38 SJK	SOUTHCOM DISPATCH	BD 216 ST & GOV. HWY, MATTSON	- ALL LANES	(Y) N	Y (N)	:	THOMPSON HARVEY		8:39 SJK	Thompson	5127-14:04 DMS
9:34 JH	ISP	SW STEVENSON AT PULASKI	- R/L-EXIT	Y N	(Y) N #30	Advised Tricia 10:16	STEVENSON JEFF		9:35 JH		10:16 per Tricia is working fine
9:34 RH	ISP	SW STEVENSON AT CICERO	- R/L/EXIT	Y N	(Y) N	:	STEVENSON JEFF		9:35 RH	JEC	5127-14:02 DMS
9:36 JH	RC 957	NB BISHOP FORD AT 111TH - ENT	- 1R L	Y N	(Y) N	:	CURT BF	-	9:37 JH	Sandy NOWAter	5125-11:11 DMS
9:41 SJK	MARY - NAPERVILLE PW	TWO WB LANES @ 1117 E. OGDEN	- 2 WEST LNS	(Y) N	Y (N)	:	HANSBOROUGH NAPERVILLE		9:42 SJK	RC149 Clean Inlets	5125-1007 FCP
9:51	Elmhurst PD	EB/WB I-290 at North Ent/Exit	- All	(Y) N	Y (N)	:	Grey Eisenhower	-	9:52	angie	5127-14:05 DMS
9:51		EB/WB North Ave at 290	-	(Y) N	Y (N)	:	Joe Northside	-	9:52	joe	5127-14:07 DMS
9:51 RH	#999	NB STEVENSON AT CALIF	- R/L	(Y) N	(Y) N	:	JEFF STEVENSON	-	9:55 RH	[illegible]	5127-14:02 DMS

COPIES TO: RIDGE, STUMPNER, GHOLEH, WOJCIK.

N - If not passable put on an IR Y - If there is a PS in area call Meade (IR if off Maint.)

12/9/2010

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER

Maintenance, Hydraulics, Elec. Maint.

Radio Frequency: South

** FLOODING ***

MONTH: October 2019

South — Alsip, Harvey, I 55, Joliet, Naperville, New Lenox, Oak Brook, St. Charles

TE / IE	DAY / DISP	INFORMANT / NAME OR #	LOCATION	Condition: Lanes / Notes / Depth / PASSABLE?	Pump Station Check: PSI (if none NA) / Meade # / Meade Name / TIME	CONTACTED: Yard / Person	TIME / DISP	VERIFIED: RC/Name / DISPOSITION	DATE / TIME	DAY / DISP
10/26	sat	ISP-5	wb manhattan/monee	rl		new lenox	23:06	875	10/27	Sun
3:03	drb		at Schoolhouse			mix	drb	signs up	2:25	CDN
10/26	sat	shorewood pd	eb Rte 52 at Baltz	eb lane		joliet	23:28	RC 834	10/27	Sun
23:27	drb					cast	drb	signs in place	0:30	CDN
10/26	Sat	Orland Park	SW Hwy	All		Alsip	21:20	714	10/26	sat
GMW	21:20		131st-135th			provenzano	drb	signs up / I.R. 19-3354	21:20	drb
10/26	sat	cook county	107th between	all		alsip	23:58	RC 714	10/27	Sun
23:56	drb		Keen and LaGrange			provenzano	drb	signs in place	3:54	CDN
7	Sun	Channahon PD	BD US-6 at	all		Joliet	8:29A	RC 832	10/27	Sun
A	JJH	#502	Navajo Dr/Bluff Rd			LW Cast	JJH	Wtr. On Pvmnt. Signs	9:58	DAT
7	Sun	Cook County	BD 135th St E of	all		Alsip	10:27A	RC 714 IR 3365	10/27	sun
A	JJH	Sheriff PD	Harlem			LW Provenzano	JJH	advised road is closed		jab
10/30	Wed	ISP-C	SW I-55 at Pulaski	Left Lane		Stevenson	5:44			
5:29	PHS					Ralph	PHS			
10/30	Wed	*999	NE I-55 at Pulaski	Left Lane		Stevenson	5:55			
5:54	CDN					Ralph	CDN			
10/30	Wed	Cook County	Archer at 107th	All		Alsip	16:13	RC 714	10/30	Wed
16:12	JMG					Jim	JMG		19:14	JMG
10/30	Wed	ISP-5	New Ave Ave	All		Joliet	17:00	Mr. Reed	10/30	Wed
17:00	JMG		Archer at 135th			Mr. Reed	JMG		18:19	JMG
10/31	Thur	RC 805	BD Governors Highway	BD		New Lenox	Thur	RC 872	10/31	Thurs
2:45	CDN		just south of Will Cook Line	unk unk		RC 888	2:47	signs up	6:00	jab

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER

Maintenance, Hydraulics, Elec. Maint.

*** FLOODING *** | MONTH: APRIL | 2020 | Radio Frequency: South

South — Alsip, Harvey, I 55, Joliet, Naperville, New Lenox, Oak Brook, St. Charles

				Condition	Pump Station Check		CONTACTED		VERIFIED		
DATE	DAY	INFORMANT /	LOCATION	Lanes / Notes	PS# (If none NA)	Meade #	Yard	TIME	RC/Name	DATE	DAY
TIME	DISP	NAME OR #		Depth PASSABLE?*	Meade Name	TIME	Person	DISP	DISPOSITION	TIME	DISP
4/7	Tues	Joliet PD	US-30 (Cass) at Highland Park	RR viaduct			New Lenox	1:55	RC 875	4/7	Tues
1:46	PHS	*847		Y			Bunnell	PHS	Closed - IR 20-1047	4:02	PHS
4/25	sat	RC 937	NB I-94 at 130	Lane 1			Bishop ford	19:11	RC 773	4/25	sat
19:11	JAB						Tate	jab	signs are up	21:40	jab
4/27	mon	ISP	SW Stevenson Pulaski	L 3			Stevenson	22:40	RC 685	4/28	Tues
22:40	jab	Camera					Mr. Emerson	jab	Inlets cleared - Open	0:08	JAB
4/28	mon	RC 903	NB I-94 at 26 on china Town				Dan Ryan	12:18	RC 653	4/28	Tue
12:17	JAB						Mr. Canino	jab	cleared	1:33	skj
4/28	Tues	Elmhurst PD	IL 83 / UP RR	RL	44		Oak Brook	17:55	RC 505	4/28	tues
17:45	DAT						Miller	DAT	signs are up	19:03	jab
4/28	tues	Joliet PD	Richards under I-80	all lanes			New Lenox	18:43	RC 873	4/28	tues
18:42	jab						Mr.Vandebogart	jab	water has gone down	19:04	jab
4/28	Tues	RC 933	SW I55 at Pulaski	all lanes			Stevenson	18:35	RC 685	4/28	Tues
6:30	JMG						Emerson	JMG		20:53	JMG
4/29	Wed	Joliet PD	US-30 (Cass) at Highland Park	RR viaduct			New Lenox	0:44	See Report 20-1244,1251	4/30	Thur
0:39	Mav			y			Mr. Vanderbogart	Mav		5:30	CDN
4/29	Wed	Shorewood PD	EB US 52 E/O County Line Rd				Joliet	16:26	RC 852	4/29	wed
16:23	JMG						Mr. Cast	JMG		17:27	JMG
4/29	Wed	Orland PD	SW Highway	All lanes	None		Alsip	16:26	Mike	4/29	Wed
16:25		611	135th -145th				Mr. Winton	GMW		17:37	JMG
4/29	Wed	Cook County	Archer at Rte 83				Alsip	17:36			
17:36	JMG						Mike	JMG			

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER

Maintenance, Hydraulics, Elec. Maint.

*** FLOODING ***** | **MONTH:** MAY 2020 | Radio Frequency: South

South — Alsip, Harvey, I 55, Joliet, Naperville, New Lenox, Oak Brook, St. Charles

				Condition	Pump Station Check		CONTACTED		VERIFIED		
TE / E	DAY / DISP	INFORMANT / NAME OR #	LOCATION	Lanes / Notes / Depth / PASSABLE?*	PS# (If none NA) / Meade Name	Meade # / TIME	Yard / Person	TIME / DISP	RC/Name / DISPOSITION	DATE / TIME	DAY / DISP
14	Thur	ETP RC 952	SW Stevenson	All / Lane 1 worst			Stevenson	7:35	RC 685	5/14	thurs
34	CDN	Mr. Smoter	BNSF Bridge 3600 W	6" yes			Ralph	CDN		13:39	jmg
14	Thurs	ISP-C	SW Stevenson at	right lane			Stevenson	8:11A	Jack	5/15	Fri
07A	JJH		Damen Ave	yes			Bob	JJH	open	8:43A	JJH
14	Thur	RC 937	SB Dan Ryan to SW	multiple lanes			Stevenson	8:54	Jack	5/15	Fri
51	MAM		Stevenson over canalport	yes			Bob	MAM	open	8:43A	JJH
14	thur	Kane co /*40	Rt 47 and Barr rd.	unknown			St Charles	8:47	Ray	5/15	Fri
43	lmh		near Hampshire	yes				lmh	signs up	11:06	PHS
14	Thurs	KCSO #40	EB IL-72 at Briar Hill Rd	unknown			St Charles	9:07A	RC 533	5/15	fri
05A	JJH	Hampshire PD					Ray	JJH	done	7:51	lmh
14	Thurs	ETP 937	NB Ford between 103rd	LN 1/LS			Bishop Ford	13:01	RC 774	5/14	Thurs
2:59	JJH	Ramirez	and Cottage Grove	yes			Scott	JJH		14:10	MAM
14	thur	palos park	Rte 83 bd between 86th and 119th	all			alsip	22:57	Paols Park *132	5/16	Sat
2:50	drb			no			winton	drb	Open	8:48	PHS
14	thur	RC 917	NB I-94 at 33	lanes 1 and 2			Ryan	23:44	RC 655	5/15	Fri
3:44	jab	Mr. Martinez					Williams	jab	water receded	2:23	CDN
14	thur	RC 917	NB i-94 at 47	unknown			Ryan	23:44	RC 655	5/15	Fri
3:44	jab	Martinez					Williams	jab	water receded	2:23	CDN
14	thur	RC 906	SB I-94 at 47	locals			Ryan	0:10	RC 655	5/15	Fri
3:53	jab	Mr. Ramirez		unknown unk			Williams	CDN	water receded	2:23	CDN
5/15	Fri	Kane County	IL 47 BD	flooding			St Charles	1:19	RC 533	5/15	fri
0:22	CDN		Plato - McDonald	unknown no			LW Sidwell	CDN	done	7:53	lmh

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER

Maintenance, Hydraulics, Elec. Maint.

*** FLOODING *** | MONTH: MAY 2020 | Radio Frequency: South

South — Alsip, Harvey, I 55, Joliet, Naperville, New Lenox, Oak Brook, St. Charles

DATE / TIME	DAY / DISP	INFORMANT / NAME OR #	LOCATION	Condition: Lanes / Notes / Depth / PASSABLE?	Pump Station Check: PS# (If none NA) / Meade Name / Meade # / TIME	CONTACTED: Yard / Person / TIME / DISP	VERIFIED: RC/Name / DISPOSITION / DATE / TIME / DAY / DISP
5/17	Sun	ETP 967	SW Stevenson	lane 3		Stevenson	RC 682
0:33	CDN		BNSF Bridge 3600 W	unknown / no		CDN / LW Ferri / 0:43	5/17 Sun / water's receded / signs / 2:37 skj
5/17	Sun	ETP 906	NB Dan Ryan to WB 290	Lane 1		Dan Ryan	Not able to open drain
0:33	CDN	Ramirez	under Roosevelt / Ln 1	unknown / no		CDN / LW Williams / 1:10	5/17 Sun / WOP signs up / 3:33 CDN
5/17	Sun	ETP 950	N - SW at bottom in curve	RS		Dan Ryan	RC 652
2:11	CDN	Valle		unknown / unk		skj / RC 652 / 2:39	5/17 Sun / water receded / 5:03 CDN
5/17	Sun	ETP 941	NB Dan Ryan	Lane 1-2		Dan Ryan	RC 652
2:45	CDN	Tawil	Mainline @ Roosevelt	unknown / unk		CDN / RC 652 / 3:33	5/17 Sun / water receded / 4:30 CDN
5/17	Sun	Bur Ridge PW	North Frontage of I 55			I 55	RC 852
10:09	DAT	John 630 441 0461				DAT / LW Cleary / 10:12	7/17 Sun / WOP SIGNS PLACED / 12:25 JMG
5/17	Sun	Gordon -	EB US-30 at Cicero Ave (IL-50)	ght turn lane		Harvey	
10:37A	JJH	Matteson PW		unk / unk		JJH	
5/17	Sun	Kane County	NB IL-25 at Stearns	NB lanes		St Charles	RC 537
10:57A	JJH	Sheriff Office		unk / unk		11:08 / Ray / JJH	5/18 Mon / WOP Sign added / 10:30 MAM
5/17	Sun	Orland Park	SW Hwy. II / 131-135	Both direction		Alsip	RC 712
11:30	JJH					11:31 / LW Winton / JJH	5/23 Sat / 21:44 JMG
5/17	Sun	Cook County	95th St. / 104th St.			Alsip	provenzano
12:18	DAT					12:10 / LW Winton	5/18 Mon / all open / 15:45 MAM
5/17	Sun	Cook Co Sheriff	135th b/w Harlem and Ridgeland	Both direction		Alsip	Winton
13:30	MAM			yes		13:35 / Winton / MAM	5/17 Sun / WOP signs put up / 13:38 MAM
5/17	Sun	ISP-5	BD Manhattan Monee Rd	both directions		New Lenox	Noe
14:04	JJH		between Cedar Rd and Schoolhouse R	unk / unk		13:35 / Mr. Perez / JMG	5/17 Sun / WOP signs in place / 15:42 JJH

for P.S. #30

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
OPERATIONS AND COMMUNICATIONS CENTER

Maintenance, Hydraulics, Elec. Maint.

** FLOODING *** | MONTH: October 2020 | Radio Frequency: South

South — Alsip, Harvey, I 55, Joliet, Naperville, New Lenox, Oak Brook, St. Charles

TE / ME	DAY / DISP	INFORMANT / NAME OR #	LOCATION	Condition: Lanes / Notes / Depth / PASSABLE?	Pump Station Check: PS# (if none NA) / Meade Name / Meade # / TIME	CONTACTED: Yard / Person	TIME / DISP	VERIFIED: RC/Name / DISPOSITION	DATE / TIME	DAY / DISP
0/22	THUR	ETP	NB I-57 AT HALSTED	LN 1/2		LANGON	1:30	RC 742	10/22	thur
:13	MAM	MAM		YES				water gone	4:51	jab
0/22	THURS	ETP	BD STEVENSON AT PULASKI	UNDER TRACKS		ROSALES	1:35	ROSALES	10/22	THUR
1:24	MAM			YES				RECEEDED	6:30	MAM
0/22	THURS	ETP	SB RYAN AT 18TH			WILLIAMS	1:40	RC 652	10/22	
1:30	MAM			YES				water gone	5:50	
0/22	THURS	ETP	NB RYAN AT 47TH LOC			WILLIAMS	1:40	RC 653	10/22	thur
1:30	MAM			YES				water receded	4:51	jab
10/22	THUR	ETP	NB RYAN AT 87TH			WILLIAMS	1:40	UNFOUNDED	1/0	MAM
1:30	MAM			YES						
10/22	thur	Roz	NE Cal	Yes		Gonzalez	3:12			
3:12	jab									
10/22	thur	Isp-Keisha	SB I-55-I-355	2,3,4,		Cleary	3:24	RC 852	10/22	
3:23	jab					I-55	jab	water receded	5:08	
10/22	Thur	958	SB Ryan at 33 rd	Ins 2 and 3						
3:44	Mav			8 inch / no						
10/22	thur	Warrenville	SB Rte. 59 and Willow Lane	yes		mike	7:50			
						Naperville	jab			
10/23	Fri	Media	SW 55 @ 3700 West	all		Stevenson	9:10			
9:08	CDN			unk / unk		OS II Neven	cdn			
10/23	Fri	Bartlett PW	EB US 20 exit to IL Rte 59	unk		Rodenburg	9:26			
9:24	CDN			unk / unk		Ahmad	CDN			

Ilene Dailey

From: Shirani, Agar B <Agar.Shirani@illinois.gov>
Sent: Wednesday, December 8, 2021 2:14 PM
To: Ilene Dailey
Cc: Winograd, Esther B
Subject: FW: Flooding SW I-55 Stevenson at Railroad Bridge e/o Pulaski, All Lanes Blocked
Attachments: 20201023_093211.jpg

Thanks,

Agar

From: Neven, Jack L <Jack.Neven@illinois.gov>
Sent: Friday, October 23, 2020 10:02 AM
To: Venegas, Consuelo M. <Consuelo.Venegas@Illinois.gov>; Meropolski, Roman L <Roman.Meropolski@illinois.gov>; Scandiff Jr., Dan J <Dan.J.Scandiff3@illinois.gov>; Shirani, Agar B <Agar.Shirani@illinois.gov>; Masouridis, Eleftherios P <Eleftherios.Masouridis@illinois.gov>; Dave, Faiyaz S <Faiyaz.Dave@illinois.gov>
Cc: Aqueel, Fawad F <Fawad.Aqueel@illinois.gov>; Ferri, Ralph <Ralph.Ferri@Illinois.gov>; Emerson, Keith <Keith.Emerson@Illinois.gov>
Subject: RE: Flooding SW I-55 Stevenson at Railroad Bridge e/o Pulaski, All Lanes Blocked

SB Stevenson lane 3 was closed by the Rail Road bridge (just west of the bridge) after a 15 minute rain. All lanes are open now.

From: Neven, Jack L
Sent: Thursday, October 22, 2020 9:39 AM
To: Venegas, Consuelo M. <Consuelo.Venegas@Illinois.gov>; Meropolski, Roman L <Roman.Meropolski@illinois.gov>; Scandiff Jr., Dan J <Dan.J.Scandiff3@illinois.gov>; Shirani, Agar B <Agar.Shirani@illinois.gov>; Masouridis, Eleftherios P <Eleftherios.Masouridis@illinois.gov>; Dave, Faiyaz S <Faiyaz.Dave@illinois.gov>
Cc: Aqueel, Fawad F <Fawad.Aqueel@illinois.gov>
Subject: RE: Flooding SW I-55 Stevenson at Railroad Bridge e/o Pulaski, All Lanes Blocked

Contract 62H40.

Dave Faiyaz was the RE on the latest project in the area of the Rail Road bridge. The sewers are NOT connected

---

From: Venegas, Consuelo M. <Consuelo.Venegas@Illinois.gov>
Sent: Thursday, October 22, 2020 8:46 AM
To: Neven, Jack L <Jack.Neven@illinois.gov>; Meropolski, Roman L <Roman.Meropolski@illinois.gov>; Scandiff Jr., Dan J <Dan.J.Scandiff3@illinois.gov>; Shirani, Agar B <Agar.Shirani@illinois.gov>; Masouridis, Eleftherios P <Eleftherios.Masouridis@illinois.gov>; Dave, Faiyaz S <Faiyaz.Dave@illinois.gov>
Cc: Aqueel, Fawad F <Fawad.Aqueel@illinois.gov>
Subject: RE: Flooding SW I-55 Stevenson at Railroad Bridge e/o Pulaski, All Lanes Blocked

I recognize the location. It is approximately .5 mile east of Pulaski. My project is about 1.5 west of the flooding location. I don't recall seeing any other projects close by.

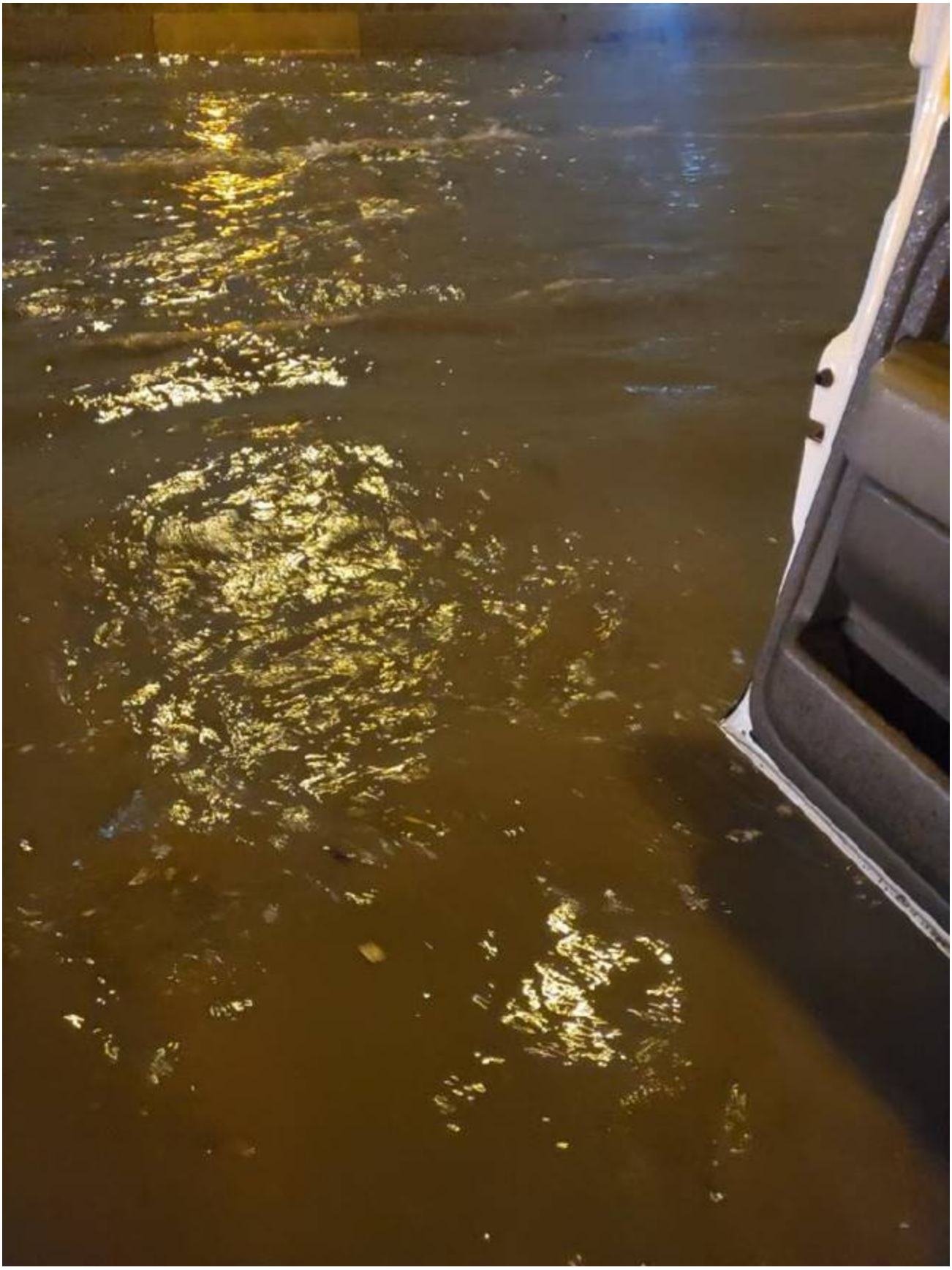
Thank you,

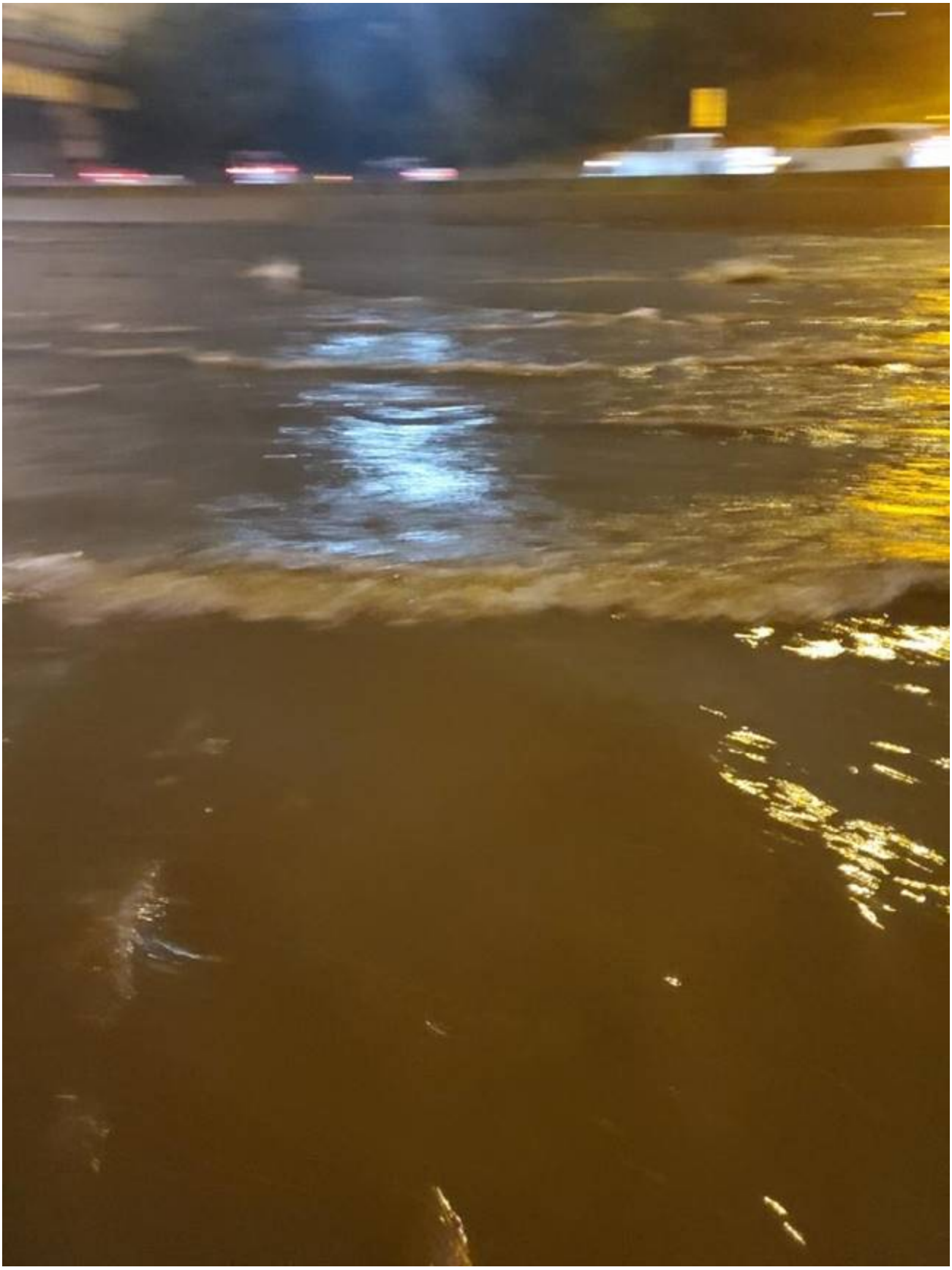
Consuelo Venegas, P.E.
Resident Engineer
Illinois Department of Transportation
847-946-2911
Consuelo.Venegas@illinois.gov

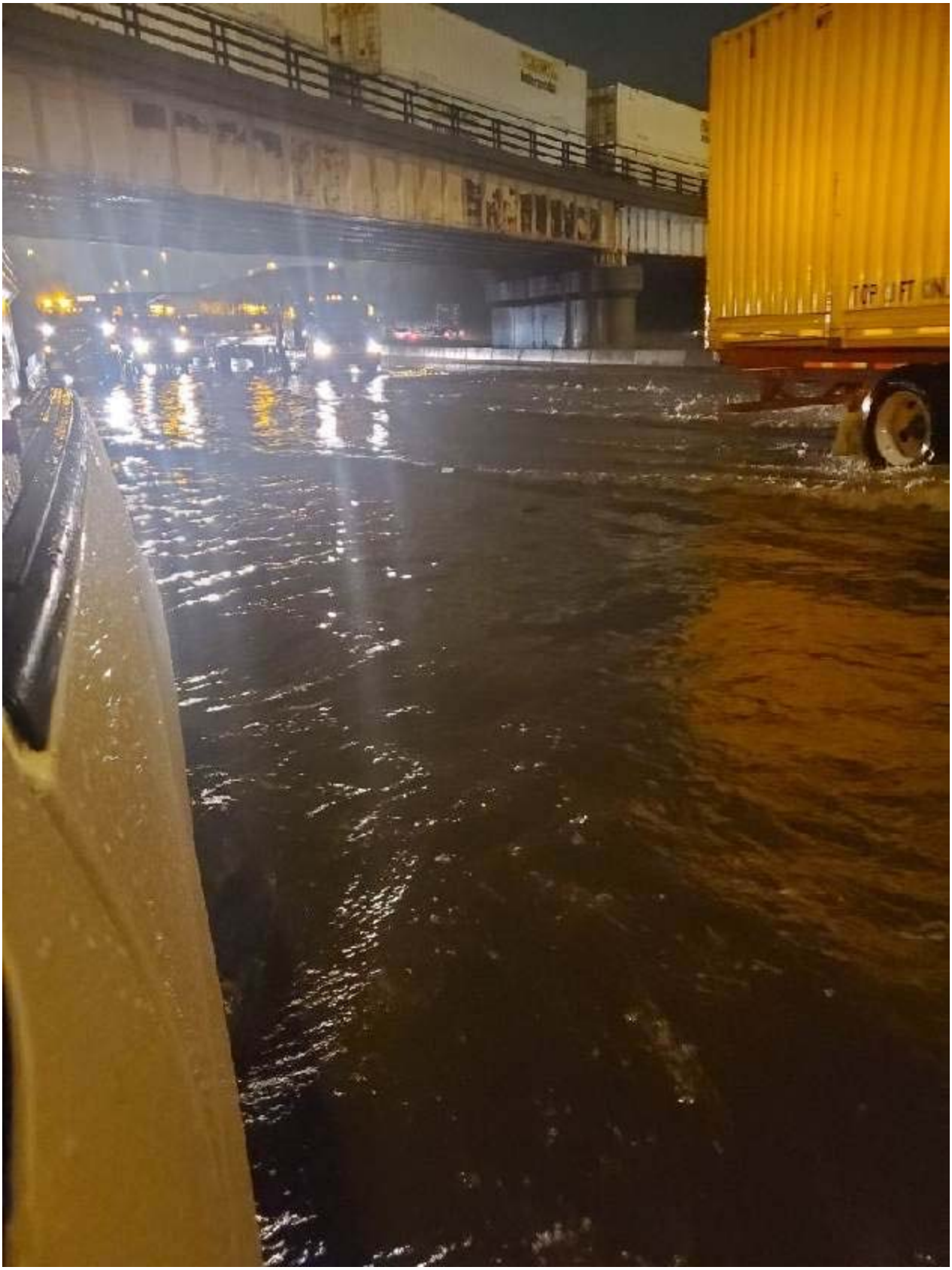
From: Neven, Jack L <Jack.Neven@illinois.gov>
Sent: Thursday, October 22, 2020 8:33 AM
To: Venegas, Consuelo M. <Consuelo.Venegas@Illinois.gov>; Meropolski, Roman L <Roman.Meropolski@illinois.gov>; Scandiff Jr., Dan J <Dan.J.Scandiff3@illinois.gov>; Shirani, Agar B <Agar.Shirani@illinois.gov>; Masouridis, Eleftherios P <Eleftherios.Masouridis@illinois.gov>; Dave, Faiyaz S <Faiyaz.Dave@illinois.gov>
Cc: Aqueel, Fawad F <Fawad.Aqueel@illinois.gov>
Subject: Re: Flooding SW I-55 Stevenson at Railroad Bridge e/o Pulaski, All Lanes Blocked


Key Oil Company


J.B. HUNT
Intermodal
J.B. HUNT
Intermodal
J.B. HUNT
Intermodal
J.B. HUNT
Intermodal







Get Outlook for iOS

From: Neven, Jack L <Jack.Neven@illinois.gov>
Sent: Thursday, October 22, 2020 8:27:40 AM
To: Venegas, Consuelo M. <Consuelo.Venegas@Illinois.gov>; Meropolski, Roman L <Roman.Meropolski@illinois.gov>;

Scandiff Jr., Dan J <Dan.J.Scandiff3@illinois.gov>; Shirani, Agar B <Agar.Shirani@illinois.gov>; Masouridis, Eleftherios P <Eleftherios.Masouridis@illinois.gov>; Dave, Faiyaz S <Faiyaz.Dave@illinois.gov>
Cc: Aqueel, Fawad F <Fawad.Aqueel@illinois.gov>
Subject: Re: Flooding SW I-55 Stevenson at Railroad Bridge e/o Pulaski, All Lanes Blocked

The Stevenson was shutdown in both directions.

Get Outlook for iOS

From: Neven, Jack L <Jack.Neven@illinois.gov>
Sent: Thursday, October 22, 2020 8:10:02 AM
To: Venegas, Consuelo M. <Consuelo.Venegas@Illinois.gov>; Meropolski, Roman L <Roman.Meropolski@illinois.gov>; Scandiff Jr., Dan J <Dan.J.Scandiff3@illinois.gov>; Shirani, Agar B <Agar.Shirani@illinois.gov>; Masouridis, Eleftherios P <Eleftherios.Masouridis@illinois.gov>; Dave, Faiyaz S <Faiyaz.Dave@illinois.gov>
Cc: Aqueel, Fawad F <Fawad.Aqueel@illinois.gov>
Subject: Re: Flooding SW I-55 Stevenson at Railroad Bridge e/o Pulaski, All Lanes Blocked

I'll send everyone pictures.... the expressway was shutdown due to flooding

Get Outlook for iOS

From: Venegas, Consuelo M. <Consuelo.Venegas@Illinois.gov>
Sent: Thursday, October 22, 2020 7:47:53 AM
To: Meropolski, Roman L <Roman.Meropolski@illinois.gov>; Scandiff Jr., Dan J <Dan.J.Scandiff3@illinois.gov>; Shirani, Agar B <Agar.Shirani@illinois.gov>; Masouridis, Eleftherios P <Eleftherios.Masouridis@illinois.gov>; Dave, Faiyaz S <Faiyaz.Dave@illinois.gov>
Cc: Neven, Jack L <Jack.Neven@illinois.gov>; Aqueel, Fawad F <Fawad.Aqueel@illinois.gov>
Subject: RE: Flooding SW I-55 Stevenson at Railroad Bridge e/o Pulaski, All Lanes Blocked

Good Morning Roman,

I don't have lane closures on SB I-55 over RR. I have a left shoulder closure on NB I-55 over BCR RR (approximately .3 miles east of Cicero). I drove by the jobsite this morning and there didn't appear to be any lanes blocked.

Thank you,

Consuelo Venegas, P.E.
Resident Engineer
Illinois Department of Transportation
847-946-2911
Consuelo.Venegas@illinois.gov

From: Meropolski, Roman L <Roman.Meropolski@illinois.gov>
Sent: Thursday, October 22, 2020 6:14 AM
To: Scandiff Jr., Dan J <Dan.J.Scandiff3@illinois.gov>; Shirani, Agar B <Agar.Shirani@illinois.gov>; Masouridis, Eleftherios P <Eleftherios.Masouridis@illinois.gov>; Dave, Faiyaz S <Faiyaz.Dave@illinois.gov>; Venegas, Consuelo M. <Consuelo.Venegas@Illinois.gov>
Cc: Neven, Jack L <Jack.Neven@illinois.gov>; Aqueel, Fawad F <Fawad.Aqueel@illinois.gov>
Subject: Re: Flooding SW I-55 Stevenson at Railroad Bridge e/o Pulaski, All Lanes Blocked

Consuelo
Do you have lane closures at that location
Get Outlook for iOS

From: Scandiff Jr., Dan J <Dan.J.Scandiff3@illinois.gov>
Sent: Thursday, October 22, 2020 6:02:22 AM
To: Shirani, Agar B <Agar.Shirani@illinois.gov>; Masouridis, Eleftherios P <Eleftherios.Masouridis@illinois.gov>; Dave, Faiyaz S <Faiyaz.Dave@illinois.gov>; Meropolski, Roman L <Roman.Meropolski@illinois.gov>
Cc: Neven, Jack L <Jack.Neven@illinois.gov>; Aqueel, Fawad F <Fawad.Aqueel@illinois.gov>
Subject: Fwd: Flooding SW I-55 Stevenson at Railroad Bridge e/o Pulaski, All Lanes Blocked

FYI, as this is in the vicinity of contract 62H40.

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From: DOT.D1ELEIncident <DOT.D1ELEIncident@Illinois.gov>
Sent: Thursday, October 22, 2020 5:12 AM
To: DOT.Communications Center; DOT.D1.ELE-Executive Notification; DOT.D1.ETP-Lead Workers; DOT.D1.TRF EXWY Section; DOT.D1.ELE-ComCenter; McKay, James R; Muller, Mickael D.; OEMC OPERATIONS CENTER; Operator (Travel Midwest); Rios, Jose (DOT); DOT.D1.TRF TSC
Cc: Van de Linde, Mark A.; Berg, Judith A.; Michuda, Michelle A.
Subject: Flooding SW I-55 Stevenson at Railroad Bridge e/o Pulaski, All Lanes Blocked

Stevenson Yard

Patrick Henry Sloper, Supervisor
Illinois Department of Transportation
Operations and Communications Center
201 Center Court
Schaumburg, IL 60196-1096
Phone: 847-705-4602
Fax: 847-705-4575
Patrick.Sloper@illinois.gov

October 23, 2020 Flooding Conditions Photo

Section 16
Conventional Survey Notes

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 41 49 41.20

Longitude: 87 42 31.63

NGVD 29 height:

Datum shift(NAVD 88 minus NGVD 29): -0.085 meter = -0.28 ft

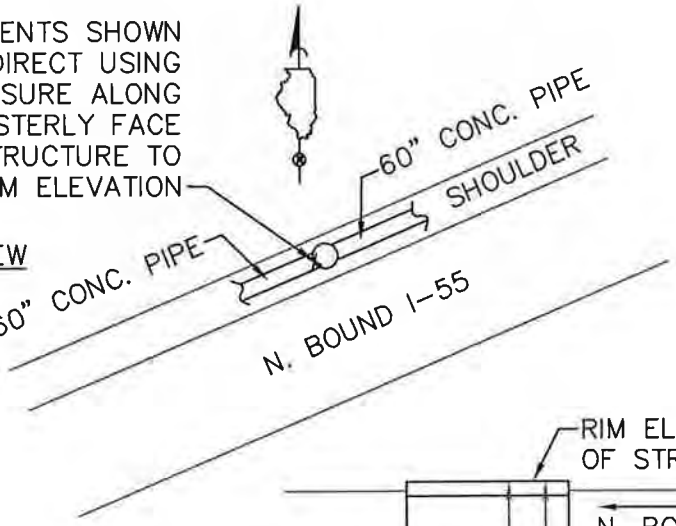
NAVD 88 = NGVD - 0.28 ft

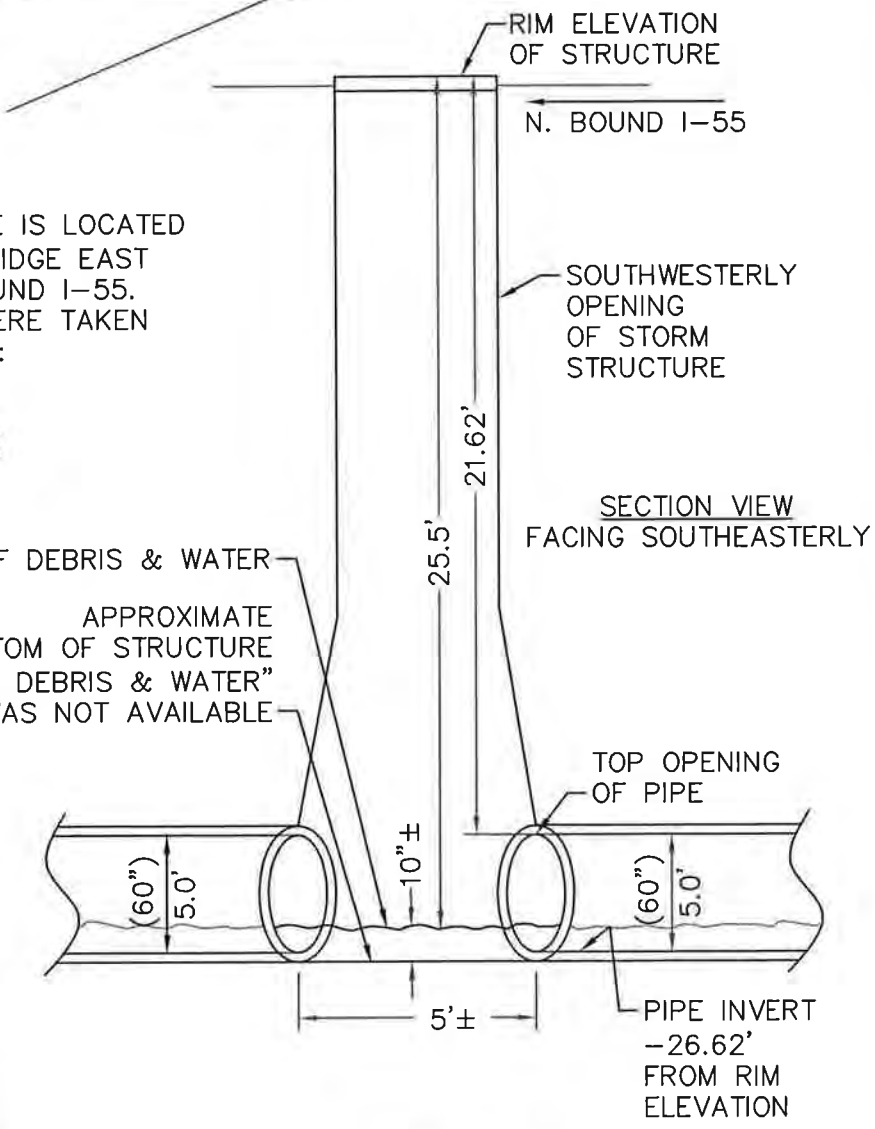
STR 52858

Storm Structure Exhibit

CWA SURVEY

ALL MEASUREMENTS SHOWN WERE TAKEN DIRECT USING A TAPE MEASURE ALONG THE SOUTHWESTERLY FACE OF STORM STRUCTURE TO THE TOP OF RIM ELEVATION





NOTE: THIS STRUCTURE IS LOCATED 500'± E'LY OF R.R. BRIDGE EAST OF PULASKI ON N. BOUND I-55. ALL MEASUREMENTS WERE TAKEN PER FIELD VISIT DATED: SEPTEMBER 1ST, 2015.

EXHIBIT NOT TO SCALE

STATE OF ILLINOIS
DAVID A. CLAASSEN
JOLIET, IL
NO. 2962
PROFESSIONAL LAND SURVEYOR

PREPARED BY:

DAVID A. CLAASSEN, PLS 2962

STR 52858

CLAASSEN, WHITE & ASSOC.

Survey Job No.	Structure No.	Rim Elev.	Date: Crew:
Lid Shape: Round: ☑ Square: ☐ Type of Lid: Open: ☐ Closed: ☑ Bee Hive: ☐ Open W/Curb Grates: ☐		Condition: Exc. ☐ Satis. ☐ Poor ☐ Collapsed: ☐ Structure Type: N↑	
Utility Type: Gas: ☐ Other: ☐ Sanitary: ☐ Storm: ☑ Combo: ☐ Inlet: ☐ Catch Basin: ☐ City Elec.: ☐ Water VV: ☐ Telephone: ☐ Cable TV: ☐ Traffic: ☐ Unknown: ☐		Sketch: FLOWS SW	
Structure Bottom Depth: 26.27		Elevation	
Top Water Depth = 25.45	Elevation =	Top of Debris Depth = 25.45	Elevation =

FLOWS SW

60" BTM 26.27

WATER 25.45

SILT T/P 21.62

Pipes

Size	Material	Direction	T/Valve or T/Pipe	Conn. To Point #	Depth	Invert
60"	RCP	SW/NE	21.62		26.27	562.37

9/1/15 D. CLAASSEN B. HORRIGAN V. HILL

Survey Job No.	Structure No.	Rim Elev.	Date: Crew:
Lid Shape: Round: ☐ Square: ☐ Type of Lid: Open: ☐ Closed: ☐ Bee Hive: ☐ Open W/Curb Grates: ☐		Condition: Exc. ☐ Satis. ☐ Poor ☐ Collapsed: ☐ Structure Type: N↑	
Utility Type: Gas: ☐ Other: ☐ Sanitary: ☐ Storm: ☐ Combo: ☐ Inlet: ☐ Catch Basin: ☐ City Elec.: ☐ Water VV: ☐ Telephone: ☐ Cable TV: ☐ Traffic: ☐ Unknown: ☐		Sketch:	
Structure Bottom Depth: =		Elevation =	
Top Water Depth =	Elevation =	Top of Debris Depth =	Elevation =

Pipes

Size	Material	Direction	T/Valve or T/Pipe	Conn. To Point #	Depth	Invert

M/H LOCATION 500' FEET EASTERLY OF RR BRIDGE EAST OF PULASKI ON I-55.

RIM PER SURVEY = 588.64

Dave Vogel

From: Winograd, Esther B <Esther.Winograd@illinois.gov>
Sent: Tuesday, September 08, 2015 11:46 AM
To: Ilene Dailey
Cc: Book, Dustin; Dave Vogel; Masouridis, Eleftherios P; Shirani, Agar B; Masouridis, Eleftherios P
Subject: RE: Pump Station #30 Pipe Verification Survey | I-55 ML
Attachments: DOC.PDF; IDOT Structure Detail 09-04-2015.pdf

Hi Ilene,

Our survey unit provided the attached information which confirms that the pipe segments in question are 60" in diameter as noted in the original plans (not 54"). The consultant who performed the survey, Claassen, White & Ass., actually had a surveyor go down into the manhole to take the measurements.
The surveyors also noted a 1' siltation in the line, which needs to be addressed. The siltation may have been caused by faulty drainage structures further west which were included in a drainage investigation report. After repair of the drainage structures we will request our Bureau of Maintenance to clean the line; however, if they cannot do it, it should be called for in the report.
Please proceed accordingly with the pump station report.
Thanks

Esther Winograd
Hydraulic Section
Bureau of programming
IDOT-DOH
201 West Center Court,
Schaumburg, IL 60196-1096
tel; 847/705-4475

From: Ilene Dailey [mailto:idailey@cbbel.com]
Sent: Friday, August 14, 2015 4:09 PM
To: Winograd, Esther B
Cc: Book, Dustin; Dave Vogel
Subject: RE: Pump Station #30 Pipe Verification Survey | I-55 ML

Esther,

Lin Engineering accessed PS 30 and confirmed the main drain coming into the pump station (called the "intake pipe" by Lin) is 60". The attached documentation from Lin confirms that finding. The field book includes a drawing showing the locations that the photos were taken. Photo 10 is the 60" into the pump station.

The drawing showing a 54" into PS 30 is a 2014 version of Stantec's EDP. Dustin can give you information about that. The drawing is meant to show the limits of the proposed resurvey. The EDP will be updated to incorporate the final survey measurements.

FYI, below is a Table showing the various sources of pipe size information for the last five pipe segments into PS 30. It will be good to get final verification of the sizes.

CBBEL Main Drain Segment Number

Data Source:	7 (under W. RR)	8 (under E. RR)	9	10	11 (into PS 30)
IDOT 1962 Constr.	54"	54"	60"	60"	60"
IDOT 1999 Metric	54"	54"	54"	54"	54"
Stantec 2014 EDP	42"	48"	54"	54"	54"
Lin 2014 Survey	42"	42"	42"/48"	48"	48"
Lin 2015 Survey	54"	54"	54"	54"	60"

Ilene A. Dailey, PE, CFM
Project Manager – Drainage Department
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Phone: (847) 823-0500 Fax: (847) 823-0520
E-Mail: idailey@cbbel.com
Visit our NEW website – www.cbbel.com

From: Winograd, Esther B [mailto:Esther.Winograd@illinois.gov]
Sent: Friday, August 14, 2015 2:54 PM
To: Ilene Dailey <idailey@cbbel.com>
Subject: FW: Pump Station #30 Pipe Verification Survey | I-55 ML

For your information and verification.

Esther Winograd
Hydraulic Section
Bureau of programming
IDOT-DOH
201 West Center Court,
Schaumburg, IL 60196-1096
tel; 847/705-4475

From: Wojcik, Rick F
Sent: Monday, August 10, 2015 1:33 PM
To: Baldauf, John E.
Cc: Schilke, Steven E; Winograd, Esther B; Smith, Corey J.; Shirani, Agar B
Subject: RE: Pump Station #30 Pipe Verification Survey | I-55 ML

John,

Esther and I discussed this a few minutes ago.

Hydraulics Section received conflicting pipe sizes shown on the plan view (i.e., 54 inch pipe coming to Pump station shown) and shown on profile view (60 inch coming to the pump station??).
Can our Surveyors do this? The pipes within the three manholes are 30 to 40 deep. Can ask him, but I would think special equipment needed.

Scope looks reasonable.

Richard F. Wojcik, P.E.
Hydraulics Section Chief
Bureau of Programming
201 West Center Court
Schaumburg, Illinois 60196

Telephone 847 705 4105
EMail Rick.Wojcik@illinois.gov

From: Baldauf, John E.
Sent: Monday, August 10, 2015 12:48 PM
To: Wojcik, Rick F
Cc: Schilke, Steven E; Winograd, Esther B; Smith, Corey J.
Subject: FW: Pump Station #30 Pipe Verification Survey | I-55 ML

Rick,

Is this scope correct and is this something we can handle internally?

Thank you,

John Baldauf, P.E.

Illinois Department of Transportation
Bureau of Programming | Project and Environmental Studies
201 West Center Court | Schaumburg, IL 60196-1096
Phone: 847.705.4103 | john.baldauf@illinois.gov

From: O'Holleran, John [mailto:John.O'Holleran@stantec.com]
Sent: Wednesday, August 05, 2015 9:44 AM
To: Baldauf, John E.
Cc: Smith, Corey J.; Schilke, Steven E
Subject: Pump Station #30 Pipe Verification Survey

John,

As discussed on today's conference call, please see below for the scope of the pipe verification survey with attached exhibits:

> Provide field verification of the pipe size and invert elevation for the main line storm pipes identified on the attached exhibit. The survey limits include three (3) manholes between Pulaski Road and Pump Station #30 and require the measurement of the existing mainline storm sewer and include the pipe into

the pump station. Survey should include measurements of the vertical and horizontal and include an explanation of the procedures used to measure the pipe to confirm the pipe shape, i.e. circular, elliptical, arch, etc. If the upstream inflow pipe into MH 81-45 does not measure 54", extend the survey up to MH 81-39 to confirm the size. Photos of the pipes if possible. Refer to the attached Survey Limits.pdf exhibit for the location and schedule of the previously surveyed pipe sizes and inverts.

The focus of the verification is to provide an accurate account of the mainline storm sewer sizes that drain to the pump station. The attached Pipe Comparison_Record vs Survey.pdf shows the conflicting data sets between the historic record and surveyed data.

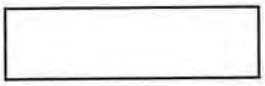
Comparing the original plans to the survey data, the three pipe segment upstream of the outlet pipe are the focus. The historic plans show 60" and the survey shows 54".

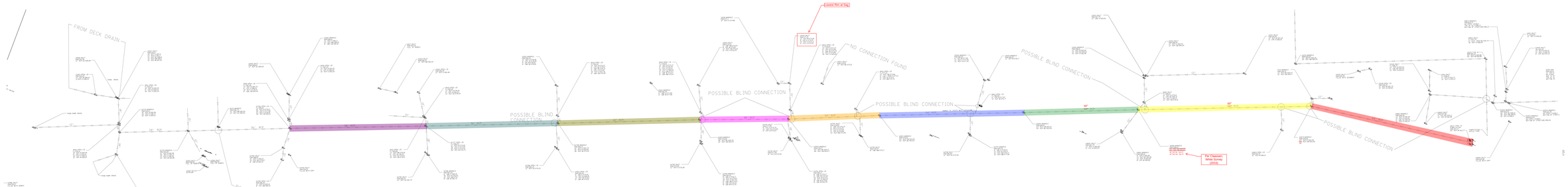
The following gentlemen has been identified in previous correspondence as a contact for Pump Station #30:

Dan Vanderbilt
Pump Station Technician
Ph: 708-524-2145
Daniel.vanderbilt@illinois.gov

The rim elevations are good. We can request benchmark information from Lin as well.

Dustin Book
Transportation Engineer
Stantec
135 South LaSalle Street, Suite 3100 Chicago IL 60603-4139
Phone: (312) 262-2233
dustin.book@stantec.com




FROM DECK DRAIN
POSSIBLE BLIND CONNECTION
POSSIBLE BLIND CONNECTION
POSSIBLE BLIND CONNECTION
NO CONNECTION FOUND
Lowest Rim at Trap
POSSIBLE BLIND CONNECTION
POSSIBLE BLIND CONNECTION
Per Classroom White Survey (2016)
Conduit #1
Conduit #2
Conduit #3
Conduit #4
Conduit #5
Conduit #6
Conduit #7
Conduit #8
Conduit #9

1" = 50'

LIN ENGINEERING
MEASUREDOWN PROCEDURE

Dave Vogel

From: Ilene Dailey
Sent: Thursday, July 23, 2015 12:16 PM
To: Winograd, Esther B
Cc: Dave Vogel; Book, Dustin
Subject: RE: I-55 main drain pipe size comparison
Attachments: Word_07062015_LIN_AMP_MeasuredownProcedure.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Esther,

The explanation of how Lin Engineering did the I-55 sewer size verification is spelled out in the attached document provided to us by Lin (Jeff Day) via Dustin. Dave will include in the report.

From: Jeff Day [mailto:jday@lineng.com]
Sent: Wednesday, July 08, 2015 4:05 PM
To: O'Holleran, John
Cc: Book, Dustin; George Woods
Subject: RE: I-55 Sewer Line Verification

John,

Attached are the following items:

DGN_07062015_LIN_JWD_SEWERPLAN.dgn Updated Microstation drawing of sewer plan
Word_07062015_LIN_AMP_MeasuredownProcedure Documentation of our measuring for sizes
PDF_07062015_LIN_JWD_FieldBook_Page 50-52 Photo Log of Pictures taken at pump station
Various photos at pump station

There are some corrections being made to the invert calc sheets for these structures and will forward them on when
completed.

Please let us know if you have any questions.

Jeff Day

LIN ENGINEERING,LTD
Consulting Engineers

3261 South Meadowbrook Road
Suite 500
Springfield, IL 62711
Phone: 217-679-2928
Cell: 217-415-2581

Measure down procedure

We used a level rod with a 2' "L" square attached to the end to have an extended zero for offset pipes. A lath cut to the size of the diameter of the manhole was laid across the opening of the manhole to get a good zero for rim elevation. When pipes were clear of sediment we used just the square. If there was sediment we attached a range pole with a sharp point at a known distance from bottom of level rod to tip of range pole to achieve correct measure down. To get the pipe size we would lift the level rod until the "L" square was in contact with the top of the pipe and level. The measured distance to top of pipe then had the width of the "L" square subtracted from it to get a true top of pipe measurement. Then we subtracted the top of pipe measurement from the measure down measurement to get the pipe size. When possible on the 24" pipes we also confirmed the size by fitting the 2' "L" square into the pipe. All measurements were performed multiple times to ensure accuracy.

For structure number 52874 we added multiple range poles to the top of the level rod to reach the bottom and achieved the measure down by top of rod height plus the added measured distance on the range poles. As a check we used a cloth tape with a weighted end. The pipe sizes could not be checked on this structure, we used the known pipe sizes from the structure to the southwest and the pump station intake pipe.

Pump station measurement

We were able to get access to the pump station. The points located are the four corners of a concrete pad with a grate covering an access point. The measure down was obtained by adding the distance from grate to ground level at bottom of station, the distance from ground level to the top of pipe and the size of the pipe. We were able to get direct access to the intake pipe to obtain the size.

Section 17
CD

The following I-55 1x1 Pump Station 30 aerial photo and XP-SWMM files are included on the CBBEL January 2022 CD:

FOLDER: Aerial

- .tif files of aerial photographs

FOLDER: Existing

- SUBFOLDER: Existing DISCONNECT Kinematic_upsize pipe
  - Existing DISCONNECT Kinematic_upsize pipe.xp
- SUBFOLDER: Existing Conditions Dynamic June 2107
  - Existing FINAL 12_2021_v14.xp

FOLDER: Proposed

- SUBFOLDER: Proposed DISCONNECT Kinematic_upsize pipe
  - Proposed DISCONNECT Kinematic_upsize pipe.xp
- SUBFOLDER: Finalist Alternatives
  - ALT 1_median pipe tie in upstream.xp
  - ALT B_vault in south ROW.xp
  - ALT C_south ROW pipe.xp
- SUBFOLDER: Previous Alternatives
  - Alternative 1.xp
  - Alternative 2.xp
  - Alternative 3.xp
  - Alternative 4.xp
  - Alternative 5.xp
  - Alternative 6.xp
  - Alternative 7.xp
  - Alternative 8.xp
  - Alternative 9.xp
  - Alternative 10.xp
  - Alternative 11.xp