

Appendix A

Rathdrum Prairie Wastewater Model Results: Pipe Depth, Manholes, and Lift Station

RATHDRUM PRAIRIE MASTER PLAN FUTURE PIPE REPORT - DEPTH

ENTITY	FLOW BASIN	CATEGORY	SIZE											GRAND TOTAL			
			8-INCH	10-INCH	12-INCH	15-INCH	18-INCH	21-INCH	24-INCH	27-INCH	30-INCH	33-INCH					
HAYDEN	RP-H-CENTRAL	NO. PIPES	28	6	4	3	1	1								43	
		NO. SHALLOW SEWER	23	2	2	3											25
		NO. TYPICAL SEWER	5	3	2	3	1	1									14
		NO. DEEP SEWER		1	2												4
	RP-H-NORTH	NO. EXCESSIVE DEPTH SEWER	10	15	21	15	23	18									13
		AVE. DEPTH (FT)	10	2	2												14
		NO. PIPES	6	2	1												6
		NO. SHALLOW SEWER	4	2	1												7
		NO. TYPICAL SEWER		1													1
		NO. DEEP SEWER															1
RP-H-SOUTH	NO. EXCESSIVE DEPTH SEWER	11	13	19												13	
	AVE. DEPTH (FT)	17	6	2												25	
	NO. PIPES	17	2	2												19	
	NO. SHALLOW SEWER		2													5	
HAYDEN	NO. TYPICAL SEWER		4	1												1	
	NO. DEEP SEWER															1	
	NO. EXCESSIVE DEPTH SEWER	9	13	17												10	
	AVE. DEPTH (FT)	55	14	8	3	1										82	
POST FALLS	RP-PF-CENTRAL	HAYDEN NO. SHALLOW SEWER	46	4	4	3	1									50	
		HAYDEN NO. TYPICAL SEWER	9	9	4	3		1								26	
		HAYDEN NO. DEEP SEWER	1	1	4		1									6	
		HAYDEN NO. EXCESSIVE DEPTH SEWER	10	14	20	15	23	18									12
	RP-PF-HW41	HAYDEN AVE. DEPTH (FT)	8	1	1												9
		NO. PIPES	6	1	1												6
		NO. SHALLOW SEWER	2	1	1												3
		NO. TYPICAL SEWER															3
		NO. DEEP SEWER															3
		NO. EXCESSIVE DEPTH SEWER	10	12													11
RP-PF-MAJOR	AVE. DEPTH (FT)	8	3	1												12	
	NO. PIPES	8	3	1												8	
	NO. SHALLOW SEWER		3	1												4	
	NO. TYPICAL SEWER															4	
	NO. DEEP SEWER															4	
	NO. EXCESSIVE DEPTH SEWER	8	15	12												10	
RP-PF-MEYER	AVE. DEPTH (FT)	39	16	5	14	8	6	3	6							97	
	NO. PIPES	39	4	4												43	
	NO. SHALLOW SEWER		12	4	13	8	6	2	2							15	
	NO. TYPICAL SEWER			1	1											3	
	NO. DEEP SEWER															3	
	NO. EXCESSIVE DEPTH SEWER	9	13	16	15	15	13	17	16							12	
RP-PF-SOUTHWEST	AVE. DEPTH (FT)	16	5	4	3	2										30	
	NO. PIPES	14	2	1												17	
	NO. SHALLOW SEWER	2	3	2	1	2										9	
	NO. TYPICAL SEWER				1											2	
	NO. DEEP SEWER															2	
	NO. EXCESSIVE DEPTH SEWER	9	13	14	25	16	7	4								12	
RP-PF-STATELINE	AVE. DEPTH (FT)	24	5	1	1	1	1	7	4							43	
	NO. PIPES	19	2	3	1	1	1	5	2	2						21	
	NO. SHALLOW SEWER	5	3	1				2	2							17	
	NO. TYPICAL SEWER															5	
	NO. DEEP SEWER															5	
	NO. EXCESSIVE DEPTH SEWER	10	13	22	12	15	19	18								13	
RP-PF-WEST	AVE. DEPTH (FT)	5	22	15	4	6	2									94	
	NO. PIPES	5	10	13	4	5	2									15	
	NO. SHALLOW SEWER		7	13	4	5	2									31	
	NO. TYPICAL SEWER		4	2		1										7	
	NO. DEEP SEWER		1													1	
	NO. EXCESSIVE DEPTH SEWER	8	13	17	14	16	15	14								14	
RATHDRUM	RP-R-CENTRAL	NO. PIPES	18	8	5	1	3	1								36	
		NO. SHALLOW SEWER	15	3												18	
		NO. TYPICAL SEWER	3	5	5		3									16	
		NO. DEEP SEWER				1	1									2	
	RP-R-MAJOR	NO. EXCESSIVE DEPTH SEWER	10	11	15	22	15	23	4								12
		AVE. DEPTH (FT)	118	60	31	23	19	13	4	13	4	3	6				281
		NO. PIPES	106	21	1												128
		NO. SHALLOW SEWER	12	34	25	18	18	11	2	2	2	2	6				137
		NO. TYPICAL SEWER		4	5	3	1	1	2	2	2	1					19
		NO. DEEP SEWER		1		2											3
RATHDRUM	RP-R-CENTRAL	NO. EXCESSIVE DEPTH SEWER	9	13	16	16	16	17	16	18	17	16				13	
		AVE. DEPTH (FT)	10	8	4		1									23	
		NO. PIPES	10	2	2		1									12	
		NO. SHALLOW SEWER		5	4		1									10	
	RP-R-MAJOR	NO. TYPICAL SEWER		1												1	
		NO. DEEP SEWER														1	
		NO. EXCESSIVE DEPTH SEWER	9	14	13	2	4	7								11	
		AVE. DEPTH (FT)	19	16	2	2	4	50								28	
		NO. PIPES	16	12	2	2	3	3								17	
		NO. SHALLOW SEWER	3	4	2	2	1	3								4	
RATHDRUM	RP-R-MAJOR	NO. TYPICAL SEWER														4	
		NO. DEEP SEWER														1	
		NO. EXCESSIVE DEPTH SEWER	9	10	13	17	18	21								12	
		AVE. DEPTH (FT)	29	24	6	2	5	7								73	
	RATHDRUM	NO. PIPES	26	14												40	
		NO. SHALLOW SEWER	3	9	6	2	4	3								27	
		NO. TYPICAL SEWER														5	
		NO. DEEP SEWER														1	
		NO. EXCESSIVE DEPTH SEWER	9	11	13	17	17	21								12	
		AVE. DEPTH (FT)	202	98	45	28	25	12	13	4	3	6				436	
RATHDRUM	Total NO. SHALLOW SEWER	178	39	1											218		
	Total NO. TYPICAL SEWER	24	52	35	23	22	7	11	2	2	6				184		
	Total NO. DEEP SEWER	1	6	9	3	3	4	2	2	1					30		
	Total AVE. DEPTH (FT)	9	13	16	16	16	19	16	18	17	16				12		

TABLE ASSUMPTIONS

SHALLOW DEPTH	Pipes with depth of upstream manhole between 0 to 12 feet
TYPICAL SEWER	Pipes with depth of upstream manhole between 12 to 20 feet
DEEP SEWER	Pipes with depth of upstream manhole between 20 to 25 feet
EXCESSIVE SEWER	Pipes with depth of upstream manhole between 25 to 30 feet

RATHDRUM PRAIRIE MASTER PLAN FUTURE PIPE REPORT - LENGTH														
ENTITY	FLOW BASIN	CATEGORY	SIZE									GRAND TOTAL		
			8-INCH	10-INCH	12-INCH	15-INCH	18-INCH	21-INCH	24-INCH	27-INCH	30-INCH		33-INCH	
HAYDEN	RP-H-CENTRAL	NO. PIPES	28	6	4	3	1	1					43	
		LENGTH (FT)	26,873	6,066	2,704	3,350	667	63					39,723	
		AVE. LENGTH (FT)	960	1,011	676	1,117	667	63					924	
	RP-H-NORTH	NO. PIPES	10	2	2								14	
		LENGTH (FT)	10,632	2,365	915								13,912	
		AVE. LENGTH (FT)	1,063	1,182	457								994	
	RP-H-SOUTH	NO. PIPES	17	6	2								25	
		LENGTH (FT)	13,289	4,114	1,405								18,808	
		AVE. LENGTH (FT)	782	686	703								752	
HAYDEN NO. PIPES			55	14	8	3	1	1				82		
HAYDEN LENGTH (FT)			50,794	12,545	5,024	3,350	667	63				72,443		
HAYDEN AVE. LENGTH (FT)			924	896	628	1,117	667	63				883		
POST FALLS	RP-PF-CENTRAL	NO. PIPES	8	1								9		
		LENGTH (FT)	8,403	100									8,504	
		AVE. LENGTH (FT)	1,050	100									945	
	RP-PF-HWY41	NO. PIPES	8	3	1								12	
		LENGTH (FT)	8,081	3,388	89								11,557	
		AVE. LENGTH (FT)	1,010	1,129	89								963	
	RP-PF-MAJOR	NO. PIPES	39	16	5	14	8			6		3	6	97
		LENGTH (FT)	40,509	16,479	6,247	13,653	9,031			7,681		1,902	2,977	98,479
		AVE. LENGTH (FT)	1,039	1,030	1,249	975	1,129			1,280		634	496	1,015
RP-PF-MEYER	NO. PIPES	16	5	4	3	2						30		
	LENGTH (FT)	15,651	3,957	4,985	1,454	854						26,901		
	AVE. LENGTH (FT)	978	791	1,246	485	427						897		
RP-PF-SOUTHWEST	NO. PIPES	24	5	1	1			1	7		4	43		
	LENGTH (FT)	20,269	5,025	1,310	1,063			1,320	4,570		2,577	36,136		
	AVE. LENGTH (FT)	845	1,005	1,310	1,063			1,320	653		644	840		
RP-PF-STATELINE	NO. PIPES	5	22	15	4	6	2					54		
	LENGTH (FT)	6,114	22,315	19,613	4,754	5,083	555					58,434		
	AVE. LENGTH (FT)	1,223	1,014	1,308	1,189	847	277					1,082		
RP-PF-WEST	NO. PIPES	18	8	5	1	3	1					36		
	LENGTH (FT)	20,713	8,154	4,823	1,318	3,666	50					38,724		
	AVE. LENGTH (FT)	1,151	1,019	965	1,318	1,222	50					1,076		
POST FALLS NO. PIPES			118	60	31	23	19	4	13	4	3	6	281	
POST FALLS LENGTH (FT)			119,740	59,418	37,067	22,243	18,635	1,925	12,251	2,577	1,902	2,977	278,734	
POST FALLS AVE. LENGTH (FT)			1,015	990	1,196	967	981	481	942	644	634	496	992	
RATHDRUM	RP-R-CENTRAL	NO. PIPES	10	8	4		1					23		
		LENGTH (FT)	11,039	8,771	3,250		243					23,304		
		AVE. LENGTH (FT)	1,104	1,096	813		243					1,013		
	RP-R-MAJOR	NO. PIPES	19	16	2	2	4	7					50	
		LENGTH (FT)	16,390	15,150	1,502	1,437	4,335	9,232					48,047	
AVE. LENGTH (FT)		863	947	751	719	1,084	1,319					961		
RATHDRUM NO. PIPES			29	24	6	2	5	7				73		
RATHDRUM LENGTH (FT)			27,429	23,922	4,752	1,437	4,578	9,232				71,351		
RATHDRUM AVE. LENGTH (FT)			946	997	792	719	916	1,319				977		
Total NO. PIPES			202	98	45	28	25	12	13	4	3	6	436	
Total LENGTH (FT)			197,963	95,885	46,843	27,030	23,880	11,221	12,251	2,577	1,902	2,977	422,528	
Total AVE. LENGTH (FT)			980	978	1,041	965	955	935	942	644	634	496	969	

			RATHDRUM PRAIRIE MASTER PLAN MANHOLE REPORT			RATHDRUM PRAIRIE MASTER PLAN PREDICTED MANHOLES REQUIRED FOR CONSTRUCTION			
			SIZE			SIZE			
ENTITY	FLOW BASIN	CATEGORY	4 FOOT DIAMETER	6 FOOT DIAMETER	GRAND TOTAL	EQUIVALENT MANHOLES PER HYDRA MANHOLE	4 FOOT DIAMETER	6 FOOT DIAMETER	GRAND TOTAL
HAYDEN	RP-H-CENTRAL	COUNT OF SIZE	42	1	43	3.08	129	3	132
		AVERAGE DEPTH (FT)	10.5	17.5	10.7		10.5	17.5	10.7
	RP-H-NORTH	COUNT OF SIZE	14		14	3.31	46		46
		AVERAGE DEPTH (FT)	10.3		10.3		10.3		10.3
	RP-H-SOUTH	COUNT OF SIZE	25		25	2.51	63		63
		AVERAGE DEPTH (FT)	8.8		8.8		8.8		8.8
HAYDEN COUNT OF SIZE			81	1	82	NA	238	3	241
HAYDEN AVERAGE DEPTH (FT)			9.9	17.5	10.0	NA	10.0	17.5	10.1
POST FALLS	RP-PF-CENTRAL	COUNT OF SIZE	9		9	2.51	23		23
		AVERAGE DEPTH (FT)	8.7		8.7		8.7		8.7
	RP-PF-HWY41	COUNT OF SIZE	12		12	3.21	39		39
		AVERAGE DEPTH (FT)	7.8		7.8		7.8		7.8
	RP-PF-MAJOR	COUNT OF SIZE	73	23	96	3.38	247	78	325
		AVERAGE DEPTH (FT)	9.2	14.5	10.5		9.2	14.5	10.5
	RP-PF-MEYER	COUNT OF SIZE	30		30	2.99	90		90
		AVERAGE DEPTH (FT)	10.6		10.6		10.6		10.6
	RP-PF-SOUTHWEST	COUNT OF SIZE	30	13	43	2.80	84	36	120
		AVERAGE DEPTH (FT)	9.4	16.5	11.5		9.4	16.5	11.5
	RP-PF-STATELINE	COUNT OF SIZE	47	7	54	3.61	170	25	195
		AVERAGE DEPTH (FT)	12.4	14.8	12.7		12.4	14.8	12.7
RP-PF-WEST	COUNT OF SIZE	32	4	36	3.59	115	14	129	
	AVERAGE DEPTH (FT)	9.3	15.9	10.0		9.3	15.9	10.0	
POST FALLS COUNT OF SIZE			233	47	280	NA	766	154	920
POST FALLS AVERAGE DEPTH (FT)			10.0	15.2	10.9	NA	10.0	15.2	10.9
RATHDRUM	RP-R-CENTRAL	COUNT OF SIZE	23		23	3.38	78		78
		AVERAGE DEPTH (FT)	9.7		9.7		9.7		9.7
	RP-R-MAJOR	COUNT OF SIZE	40	11	51	3.20	128	35	163
		AVERAGE DEPTH (FT)	8.9	17.6	10.8		8.9	17.6	10.8
RATHDRUM COUNT OF SIZE			63	11	74	NA	206	35	241
RATHDRUM AVERAGE DEPTH (FT)			9.2	17.6	10.4	NA	9.3	17.6	10.2
Total COUNT OF SIZE			377	59	436	NA	1,210	192	1,402
Total AVERAGE DEPTH (FT)			9.8	15.7	10.6	NA	9.9	15.6	10.6
TABLE ASSUMPTIONS									
EQUIVALENT MANHOLES PER HYDRA MANHOLE		MANHOLES PREDICTED TO BE REQUIRED FOR CONSTRUCTION. FOR 4 FOOT DIAMETER MANHOLES IN THE RP-H-CENTRAL FLOW BASIN THE AVERAGE PIPE LENGTH IS 924 FT (SEE PIPE LENGTH TABLE), 300 FEET ASSUMED BETWEEN EACH MANHOLE (HYDRA MODEL ASSUMPTION) RESULTS IN 924 FT/300 FT = 3.08 MANHOLES PER ONE MANHOLE IN HYDRA FOR THIS FLOW BASIN.							

RATHDRUM PRAIRIE MASTER PLAN LIFT STATION REPORT

ENTITY	LIFT STATION NAME	CATEGORY	Total	FORCE MAIN NAME	CATEGORY	Total
HAYDEN	RP-H-CENTRAL LS	PEAK INFLUENT Q (CFS)	3.22	RP-H-CENTRAL FM	LENGTH (FT)	4214
		Q AVERAGE (CFS)	1.38		SIZE (IN)	12
		LS PEAK FACTOR	2.33		PEAK INFLUENT Q (CFS)	3.22
		WHP @ Q PEAK	27		VELOCITY @ Q PEAK (FT/SEC)	4.10
		TDH @ Q PEAK	74		AVERAGE INFLUENT Q (CFS)	1.38
		EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	1.76
		L.S. Bhp @ Q PEAK	54		STATIC HEAD (FT)	48
	DEPTH (FT)	18.3	FRICITION LOSSES @ Q PEAK (FT)	27		
	RP-H-CENTRAL WEST LS	PEAK INFLUENT Q (CFS)	0.68	RP-H-CENTRAL WEST FM	LENGTH (FT)	2702
		Q AVERAGE (CFS)	0.29		SIZE (IN)	8
		LS PEAK FACTOR	2.39		PEAK INFLUENT Q (CFS)	0.68
		WHP @ Q PEAK	3		VELOCITY @ Q PEAK (FT/SEC)	1.95
		TDH @ Q PEAK	35		AVERAGE INFLUENT Q (CFS)	0.29
		EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	0.82
		L.S. Bhp @ Q PEAK	5		STATIC HEAD (FT)	28
	DEPTH (FT)	22.1	FRICITION LOSSES @ Q PEAK (FT)	7		
	RP-H-NORTH LS	PEAK INFLUENT Q (CFS)	0.90	RP-H-NORTH FM	LENGTH (FT)	4013
		Q AVERAGE (CFS)	0.38		SIZE (IN)	8
		LS PEAK FACTOR	2.39		PEAK INFLUENT Q (CFS)	0.9
		WHP @ Q PEAK	5		VELOCITY @ Q PEAK (FT/SEC)	2.58
TDH @ Q PEAK		48	AVERAGE INFLUENT Q (CFS)		0.38	
EFFICIENCY		50%	VELOCITY @ Q AVERAGE (FT/SEC)		1.08	
L.S. Bhp @ Q PEAK		10	STATIC HEAD (FT)		31	
DEPTH (FT)	18.9	FRICITION LOSSES @ Q PEAK (FT)	16			
RP-H-SOUTH LS	PEAK INFLUENT Q (CFS)	1.01	RP-H-SOUTH FM	LENGTH (FT)	4423	
	Q AVERAGE (CFS)	0.41		SIZE (IN)	8	
	LS PEAK FACTOR	2.46		PEAK INFLUENT Q (CFS)	1.01	
	WHP @ Q PEAK	6		VELOCITY @ Q PEAK (FT/SEC)	2.89	
	TDH @ Q PEAK	53		AVERAGE INFLUENT Q (CFS)	0.41	
	EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	1.17	
	L.S. Bhp @ Q PEAK	12		STATIC HEAD (FT)	31	
DEPTH (FT)	12.0	FRICITION LOSSES @ Q PEAK (FT)	22			

RATHDRUM PRAIRIE MASTER PLAN LIFT STATION REPORT

ENTITY	LIFT STATION NAME	CATEGORY	Total	FORCE MAIN NAME	CATEGORY	Total
POST FALLS	RP-PF-HWY 41 LS	PEAK INFLUENT Q (CFS)	0.77	RP-PF-HWY41 FM	LENGTH (FT)	4725
		Q AVERAGE (CFS)	0.39		SIZE (IN)	8
		LS PEAK FACTOR	1.98		PEAK INFLUENT Q (CFS)	0.773
		WHP @ Q PEAK	5		VELOCITY @ Q PEAK (FT/SEC)	2.21
		TDH @ Q PEAK	55		AVERAGE INFLUENT Q (CFS)	0.39
		EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	1.12
		L.S. Bhp @ Q PEAK	10		STATIC HEAD (FT)	41
		DEPTH (FT)	12.0		FRICTION LOSSES @ Q PEAK (FT)	14
	RP-PF-MAJOR LS	PEAK INFLUENT Q (CFS)	13.65	RP-PF-MAJOR FM	LENGTH (FT)	17982
		Q AVERAGE (CFS)	7.09		SIZE (IN)	24
		LS PEAK FACTOR	1.93		PEAK INFLUENT Q (CFS)	13.65
		WHP @ Q PEAK	230		VELOCITY @ Q PEAK (FT/SEC)	4.34
		TDH @ Q PEAK	149		AVERAGE INFLUENT Q (CFS)	7.09
		EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	2.26
		L.S. Bhp @ Q PEAK	460		STATIC HEAD (FT)	90
		DEPTH (FT)	17.4		FRICTION LOSSES @ Q PEAK (FT)	59
	RP-PF-MAJOR RR LS	PEAK INFLUENT Q (CFS)	0.40	RP-PF-MAJOR RR FM	LENGTH (FT)	2292
		Q AVERAGE (CFS)	0.20		SIZE (IN)	8
		LS PEAK FACTOR	2.00		PEAK INFLUENT Q (CFS)	0.4
		WHP @ Q PEAK	2		VELOCITY @ Q PEAK (FT/SEC)	1.15
		TDH @ Q PEAK	34		AVERAGE INFLUENT Q (CFS)	0.20
		EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	0.57
		L.S. Bhp @ Q PEAK	3		STATIC HEAD (FT)	32
		DEPTH (FT)	12.0		FRICTION LOSSES @ Q PEAK (FT)	2
RP-PF-MEYER LS	PEAK INFLUENT Q (CFS)	1.42	RP-PF-MEYER FM	LENGTH (FT)	2463	
	Q AVERAGE (CFS)	0.72		SIZE (IN)	8	
	LS PEAK FACTOR	1.96		PEAK INFLUENT Q (CFS)	1.42	
	WHP @ Q PEAK	11		VELOCITY @ Q PEAK (FT/SEC)	4.07	
	TDH @ Q PEAK	67		AVERAGE INFLUENT Q (CFS)	0.72	
	EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	2.07	
	L.S. Bhp @ Q PEAK	21		STATIC HEAD (FT)	45	
	DEPTH (FT)	26.0		FRICTION LOSSES @ Q PEAK (FT)	22	
RP-PF-SOUTHWEST LS	PEAK INFLUENT Q (CFS)	6.33	RP-PF-SOUTHWEST FM	LENGTH (FT)	11628	
	Q AVERAGE (CFS)	3.29		SIZE (IN)	18	
	LS PEAK FACTOR	1.92		PEAK INFLUENT Q (CFS)	6.33	
	WHP @ Q PEAK	84		VELOCITY @ Q PEAK (FT/SEC)	3.58	
	TDH @ Q PEAK	118		AVERAGE INFLUENT Q (CFS)	3.29	
	EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	1.86	
	L.S. Bhp @ Q PEAK	169		STATIC HEAD (FT)	84	
	DEPTH (FT)	12.0		FRICTION LOSSES @ Q PEAK (FT)	34	
RP-PF-STATELINE LS	PEAK INFLUENT Q (CFS)	6.74	RP-PF-STATELINE FM	LENGTH (FT)	13302	
	Q AVERAGE (CFS)	3.45		SIZE (IN)	18	
	LS PEAK FACTOR	1.95		PEAK INFLUENT Q (CFS)	6.74	
	WHP @ Q PEAK	114		VELOCITY @ Q PEAK (FT/SEC)	3.81	
	TDH @ Q PEAK	149		AVERAGE INFLUENT Q (CFS)	3.45	
	EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	1.95	
	L.S. Bhp @ Q PEAK	227		STATIC HEAD (FT)	106	
	DEPTH (FT)	16.2		FRICTION LOSSES @ Q PEAK (FT)	43	
RP-PF-WEST LS	PEAK INFLUENT Q (CFS)	3.77	RP-PF-WEST FM	LENGTH (FT)	3993	
	Q AVERAGE (CFS)	1.93		SIZE (IN)	12	
	LS PEAK FACTOR	1.96		PEAK INFLUENT Q (CFS)	3.77	
	WHP @ Q PEAK	35		VELOCITY @ Q PEAK (FT/SEC)	4.80	
	TDH @ Q PEAK	81		AVERAGE INFLUENT Q (CFS)	1.93	
	EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	2.45	
	L.S. Bhp @ Q PEAK	69		STATIC HEAD (FT)	51	
	DEPTH (FT)	22.9		FRICTION LOSSES @ Q PEAK (FT)	30	

RATHDRUM PRAIRIE MASTER PLAN LIFT STATION REPORT

ENTITY	LIFT STATION NAME	CATEGORY	Total	FORCE MAIN NAME	CATEGORY	Total
RATHDRUM	RP-R-CENTRAL LS	PEAK INFLUENT Q (CFS)	2.14	RP-R-CENTRAL FM	LENGTH (FT)	4986
		Q AVERAGE (CFS)	1.01		SIZE (IN)	12
		LS PEAK FACTOR	2.11		PEAK INFLUENT Q (CFS)	2.136
		WHP @ Q PEAK	20		VELOCITY @ Q PEAK (FT/SEC)	2.72
		TDH @ Q PEAK	83		AVERAGE INFLUENT Q (CFS)	1.01
		EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	1.29
		L.S. Bhp @ Q PEAK	40		STATIC HEAD (FT)	70
		DEPTH (FT)	13.2		FRICITION LOSSES @ Q PEAK (FT)	13
	RP-R-MAJOR NE LS	PEAK INFLUENT Q (CFS)	0.16	RP-R-MAJOR NE FM	LENGTH (FT)	1265
		Q AVERAGE (CFS)	0.07		SIZE (IN)	6
		LS PEAK FACTOR	2.51		PEAK INFLUENT Q (CFS)	0.163
		WHP @ Q PEAK	0		VELOCITY @ Q PEAK (FT/SEC)	0.83
		TDH @ Q PEAK	19		AVERAGE INFLUENT Q (CFS)	0.07
		EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	0.33
		L.S. Bhp @ Q PEAK	1		STATIC HEAD (FT)	18
		DEPTH (FT)	9.7		FRICITION LOSSES @ Q PEAK (FT)	1
	RP-R-MAJOR SE LS	PEAK INFLUENT Q (CFS)	0.28	RP-R-MAJOR SE FM	LENGTH (FT)	2905
		Q AVERAGE (CFS)	0.11		SIZE (IN)	6
		LS PEAK FACTOR	2.48		PEAK INFLUENT Q (CFS)	0.275
		WHP @ Q PEAK	1		VELOCITY @ Q PEAK (FT/SEC)	1.40
		TDH @ Q PEAK	21		AVERAGE INFLUENT Q (CFS)	0.11
		EFFICIENCY	50%		VELOCITY @ Q AVERAGE (FT/SEC)	0.57
		L.S. Bhp @ Q PEAK	1		STATIC HEAD (FT)	17
		DEPTH (FT)	9.4		FRICITION LOSSES @ Q PEAK (FT)	4

TABLE ASSUMPTIONS

PEAK INFLUENT FLOW	HYDRA Peak Influent Flow
WHP @ Q PEAK	Water Horsepower required to pump at Peak Flow
TDH @ Q PEAK	Total Dynamic Head at Peak Flow
EFFICIENCY	A value of 50% is assumed for pump configuration
L.S. Bhp @ Q PEAK	Pump horsepower at peak flow with assumed efficiency
DEPTH	Elevation of Ground - Elevation of Invert into lift station
STATIC HEAD	Static Elevation difference. Accounts for the highest elevation for pumping over a high point
FRICITION LOSSES	Total friction losses for pipe flow losses calculated with Darcy-Weisbach friction factor, "C" value of 120, and "k" value of 2/1000 ft for minor losses