

ENGINEERS : A.B.C. FIRE PROTECTION.  
ADDRESS : 1234 Fremont Bl, Suite 609, Fremont CA 94554.

LICENSE :  
DESIGNER :  
DATE : 05-15-2017

FILE : C:\HYDRON59\LION.HYD  
JOB NAME : Lion Town Market  
LOCATION :

DESIGN DATA.

HAZARD :

DENSITY : 0.160 Sq Ft  
AREA PER SPRINKLER : 130 Sq Ft  
TOTAL CALCULATED AREA : 1560 Sq Ft  
TOTAL SPRINKLERS CALCULATED : 12 Heads

FLOW DATA.

TOTAL SPRINKLER FLOW : 258.5 Gpm  
TOTAL HOSE STREAM : 250.0 Gpm  
TOTAL WATER REQUIRED : 508.5 Gpm  
BASE OF RISER NODE : 20  
FLOW : 358.5 Gpm  
PRESS : 31.1 Psi

AUTHORITY HAVING JURISDICTION :  
PHONE :

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SOURCE | STATIC : 50 Psi RESIDUAL : 45 Psi FLOW : 600 Gpm

NODE NO.	ELEVATION Feet	K-FACTOR	PRESSURE Psi	DISCHARGE Gpm
101	15.0	5.60	13.8	20.8
102	15.0	5.60	15.2	21.8
3A	15.0		16.8	
103	15.0	5.60	15.2	21.8
104	15.0	5.60	13.8	20.8
105	15.0	5.60	14.0	21.0
106	15.0	5.60	15.4	22.0
8	15.0		17.0	
107	15.0	5.60	15.4	22.0
108	15.0	5.60	14.0	21.0
109	15.0	5.60	14.1	21.0
110	15.0	5.60	15.5	22.1
13	15.0		18.0	
111	15.0	5.60	16.3	22.6
112	15.0	5.60	14.8	21.6
16	14.0		19.3	
17	14.0		19.6	
18	14.0		20.6	
19	14.0		22.7	
20	0.0		31.1	HOSE 100.0
21	0.0		33.6	
22	0.0		37.6	
23	0.0	SOURCE	37.9	508.5

SPRINKLERS FLOWING : 12 Heads  
 AREA PER SPRINKLER : 130 Sq Ft

REQUIRED DENSITY : 0.160 Gpm/Sq Ft  
 COMPUTED DENSITY : 0.160 Gpm/Sq Ft

TOTAL SPRINKLER FLOW : 258.5 Gpm  
 INSIDE HOSE STREAM : 100 Gpm  
 OUTSIDE HOSE STREAM : 150 Gpm  
 TOTAL WATER REQUIRED : 508.5 Gpm  
 TOTAL SPRINKLER PRESS : 33.9 Psi  
 FIXED PRESS LOSS : 4.0 Psi

SUPPLY PRESS AVAILABLE : 46.3 Psi  
 DEMAND PRESS REQUIRED : 37.9 Psi  
 PRESSURE CUSHION : 8.4 Psi  
 MAXIMUM VELOCITY : 15.2 F/S

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 Hydronics Engineering  
 34119 Fremont Bl, Suite 609  
 Fremont, CA 94555  
 (800) 845-9819

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PIPE NO.	BEG END	ELEV (Feet) ELEV	FLOW Gpm	K-FACTOR FITTING TYPE DIAMETER	LENGTH FTG TOTAL	C-FACTOR FRI-LOSS (Psi/Ft)	PRESSURE (Psi)
1	101	15.0	q= 20.8	K= 5.60	L= 10.0		Pt 13.8
			Q= 20.8	F=	F= 0.0	C= 120	Pe 0.0
			Vel= 7.7	D= 1.049	TL= 10.0	0.1400	Pf 1.4
	102	15.0					Pt 13.8
2	102	15.0	q= 21.8	K= 5.60	L= 5.0		Pt 15.2
			Q= 42.6	F= T	F= 6.0	C= 120	Pe 0.0
			Vel= 9.1	D= 1.380	TL= 11.0	0.1389	Pf 1.5
	3A	15.0					Pt 16.8
3	3A	15.0	q= 21.8	K= 5.60	L= 5.0		Pt 16.8
			Q= 42.6	F= T	F= 6.0	C= 120	Pe 0.0
			Vel= 9.1	D= 1.380	TL= 11.0	0.1389	Pf 1.5
	103	15.0					Pt 16.8
4	103	15.0	q= 20.8	K= 5.60	L= 10.0		Pt 15.2
			Q= 20.8	F=	F= 0.0	C= 120	Pe 0.0
			Vel= 7.7	D= 1.049	TL= 10.0	0.1400	Pf 1.4
	104	15.0					Pt 13.8
5	105	15.0	q= 21.0	K= 5.60	L= 10.0		Pt 14.0
			Q= 21.0	F=	F= 0.0	C= 120	Pe 0.0
			Vel= 7.8	D= 1.049	TL= 10.0	0.1419	Pf 1.4
	106	15.0					Pt 15.4
6	106	15.0	q= 22.0	K= 5.60	L= 5.0		Pt 15.4
			Q= 43.0	F= T	F= 6.0	C= 120	Pe 0.0
			Vel= 9.2	D= 1.380	TL= 11.0	0.1408	Pf 1.5
	8	15.0					Pt 17.0
7	8	15.0	q= 22.0	K= 5.60	L= 5.0		Pt 17.0
			Q= 43.0	F= T	F= 6.0	C= 120	Pe 0.0
			Vel= 9.2	D= 1.380	TL= 11.0	0.1408	Pf 1.5
	107	15.0					Pt 15.4
8	107	15.0	q= 21.0	K= 5.60	L= 10.0		Pt 15.4
			Q= 21.0	F=	F= 0.0	C= 120	Pe 0.0
			Vel= 7.8	D= 1.049	TL= 10.0	0.1419	Pf 1.4
	108	15.0					Pt 14.0
9	109	15.0	q= 21.0	K= 5.60	L= 10.0		Pt 14.1
			Q= 21.0	F=	F= 0.0	C= 120	Pe 0.0
			Vel= 7.8	D= 1.049	TL= 10.0	0.1428	Pf 1.4
	110	15.0					Pt 15.5

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10	110	15.0	q= 22.1	K= 5.60 L=	5.0		Pt 15.5 Pt 15.5
			Q= 43.1	F= 2T F=	12.0	C= 120	Pe 0.0 Pv -0.6
			Vel= 9.2	D= 1.380 TL=	17.0	0.1416	Pf 2.4 Pn 15.0
	13	15.0					Pt 18.0
11	13	15.0	q= 22.6	K= 5.60 L=	5.0		Pt 18.0 Pt 18.0
			Q= 44.2	F= T F=	6.0	C= 120	Pe 0.0 Pv -0.6
			Vel= 9.5	D= 1.380 TL=	11.0	0.1482	Pf 1.6 Pn 17.4
	111	15.0					Pt 16.3
12	111	15.0	q= 21.6	K= 5.60 L=	10.0		Pt 16.3 Pt 16.3
			Q= 21.6	F= F=	0.0	C= 120	Pe 0.0 Pv -0.4
			Vel= 8.0	D= 1.049 TL=	10.0	0.1494	Pf 1.5 Pn 15.9
	112	15.0					Pt 14.8
13	3A	15.0	q= 0.0	K= 0.00 L=	1.0		Pt 16.8 Pt 16.8
			Q= 85.3	F= T F=	8.0	C= 120	Pe 0.4 Pv -1.2
			Vel= 13.4	D= 1.610 TL=	9.0	0.2364	Pf 2.1 Pn 15.5
	16	14.0					Pt 19.3
14	8	15.0	q= 0.0	K= 0.00 L=	1.0		Pt 17.0 Pt 17.0
			Q= 85.9	F= T F=	8.0	C= 120	Pe 0.4 Pv -1.2
			Vel= 13.5	D= 1.610 TL=	9.0	0.2397	Pf 2.2 Pn 15.8
	17	14.0					Pt 19.6
15	13	15.0	q= 0.0	K= 0.00 L=	1.0		Pt 18.0 Pt 18.0
			Q= 87.3	F= T F=	8.0	C= 120	Pe 0.4 Pv -1.3
			Vel= 13.8	D= 1.610 TL=	9.0	0.2466	Pf 2.2 Pn 16.7
	18	14.0					Pt 20.6
16	16	14.0	q= 0.0	K= 0.00 L=	13.0		Pt 19.3 Pt 19.3
			Q= 85.3	F= F=	0.0	C= 120	Pe 0.0 Pv -0.2
			Vel= 5.0	D= 2.635 TL=	13.0	0.0215	Pf 0.3 Pn 19.2
	17	14.0					Pt 19.6
17	17	14.0	q= 0.0	K= 0.00 L=	13.0		Pt 19.6 Pt 19.6
			Q= 171.2	F= F=	0.0	C= 120	Pe 0.0 Pv -0.7
			Vel= 10.1	D= 2.635 TL=	13.0	0.0779	Pf 1.0 Pn 18.9
	18	14.0					Pt 20.6
18	18	14.0	q= 0.0	K= 0.00 L=	6.0		Pt 20.6 Pt 20.6
			Q= 258.5	F= E F=	6.0	C= 120	Pe 0.0 Pv -1.6
			Vel= 15.2	D= 2.635 TL=	12.0	0.1669	Pf 2.0 Pn 19.1
	19	14.0					Pt 22.7

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19	19	14.0	q= 0.0	K= 0.00	L=	14.2		Pt 22.7 Pt 22.7
			Q= 258.5	F=	F=	0.0	C= 120	Pe 6.1 Pv -1.6
			Vel= 15.2	D= 2.635	TL=	14.2	0.1669	Pf 2.4 Pn 21.1
	20	0.0						Pt 31.1
20	20	0.0	q= 100.0	HOSE	L=	100.0		Pt 31.1 Pt 31.1
			Q= 358.5	F= E	F=	13.0	C= 140	Pe 0.0 Pv -0.4
			Vel= 8.0	D= 4.280	TL=	113.0	0.0216	Pf 2.4 Pn 30.7
	21	0.0						Pt 33.6
BFP	21	0.0	Q= 358.5					Pt 33.6
			FIXED PRESSURE LOSS					Valve 4.0
	22	0.0						Pt 37.6
22	22	0.0	q= 0.0	K= 0.00	L=	10.0		Pt 37.6 Pt 37.6
			Q= 358.5	F= G	F=	3.0	C= 140	Pe 0.0 Pv -0.4
			Vel= 8.0	D= 4.280	TL=	13.0	0.0216	Pf 0.3 Pn 37.2
	23	0.0						Pt 37.9
			Q= 508.5	<<<	SOURCE	>>>		Pt 37.9

E=90-Elb T=Tee L=LgtElb C=ChkVlv B=BfyVlv G=GatVlv A=AlmChk F=45-E

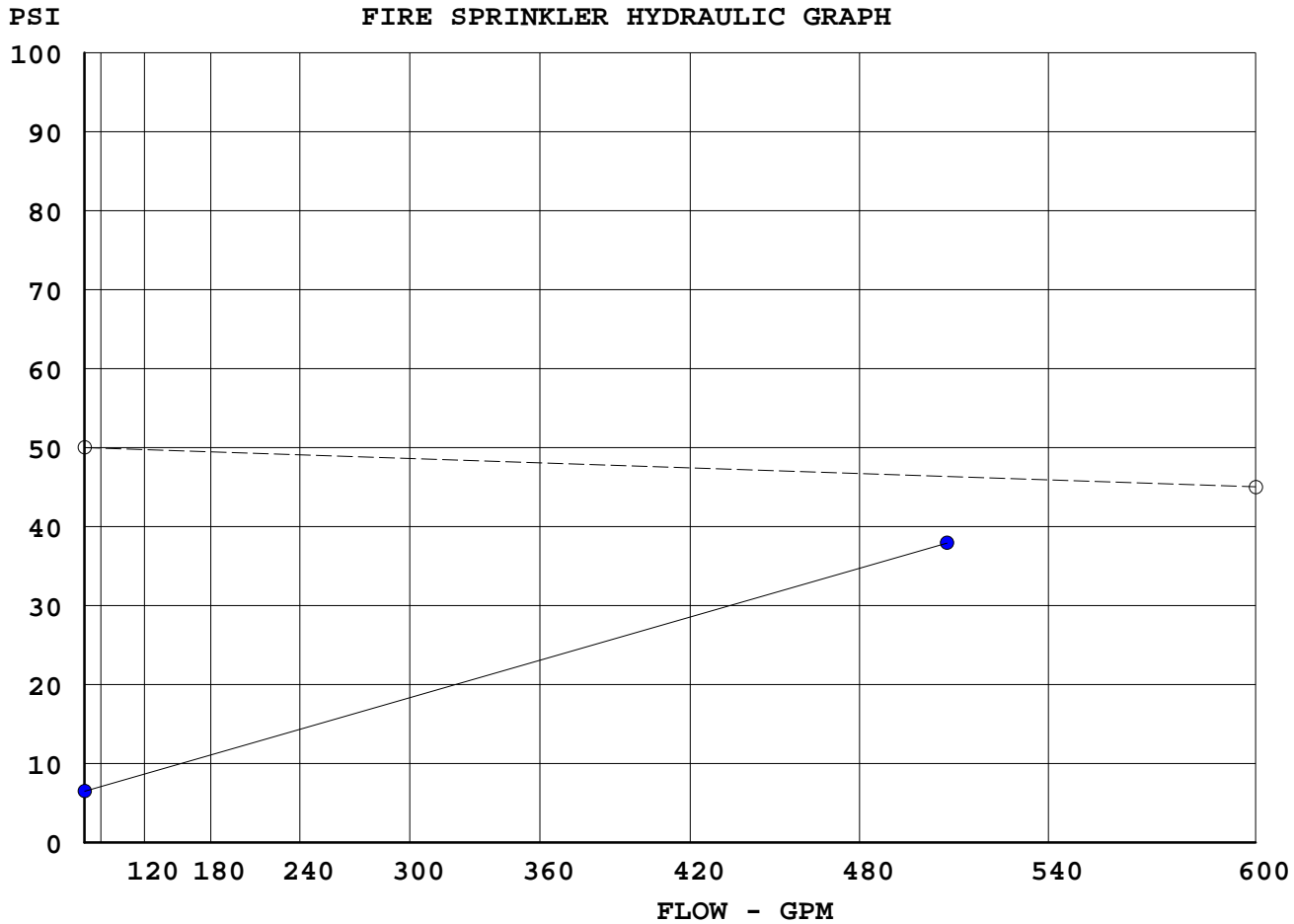
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○-----○ Water Supply

Static : 50 Psi

Resid : 45 Psi

Flow : 600 Gpm

●-----● Water Demand

Avl Press : 46.3 Psi @ 509 Gpm

Req Press : 37.9 Psi @ 509 Gpm

Press Cush: 8.4 Psi

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Fremont, CA 94555.

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