Using HASS you can set the required pressure to anything you want and here I set it to 10 psi.

Total sprinkler demand is 434.7 gpm which increases to a total water demand 684.7 gpm when 250 gpm hose is added.

The available pressure is 23.9 psi

WATER SUPPLY DATA — This is set with a 10.0 psi required pressure - I use HASS

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	@ FLOW (GPM)	AVAIL. PRESS. (PSI)	@ TOTAL DEMAND (GPM)	REQ'D PRESS. (PSI)
SRC	45.0	27.0	628.0	23.9	684.7	10.0

With 250 gpm hose stream the system requires a total of 684.7 gpm at 23.9 psi.

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	684.7 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	250.0 GPM
OTHER HOSE STREAM ALLOWANCES	0.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	434.7 GPM

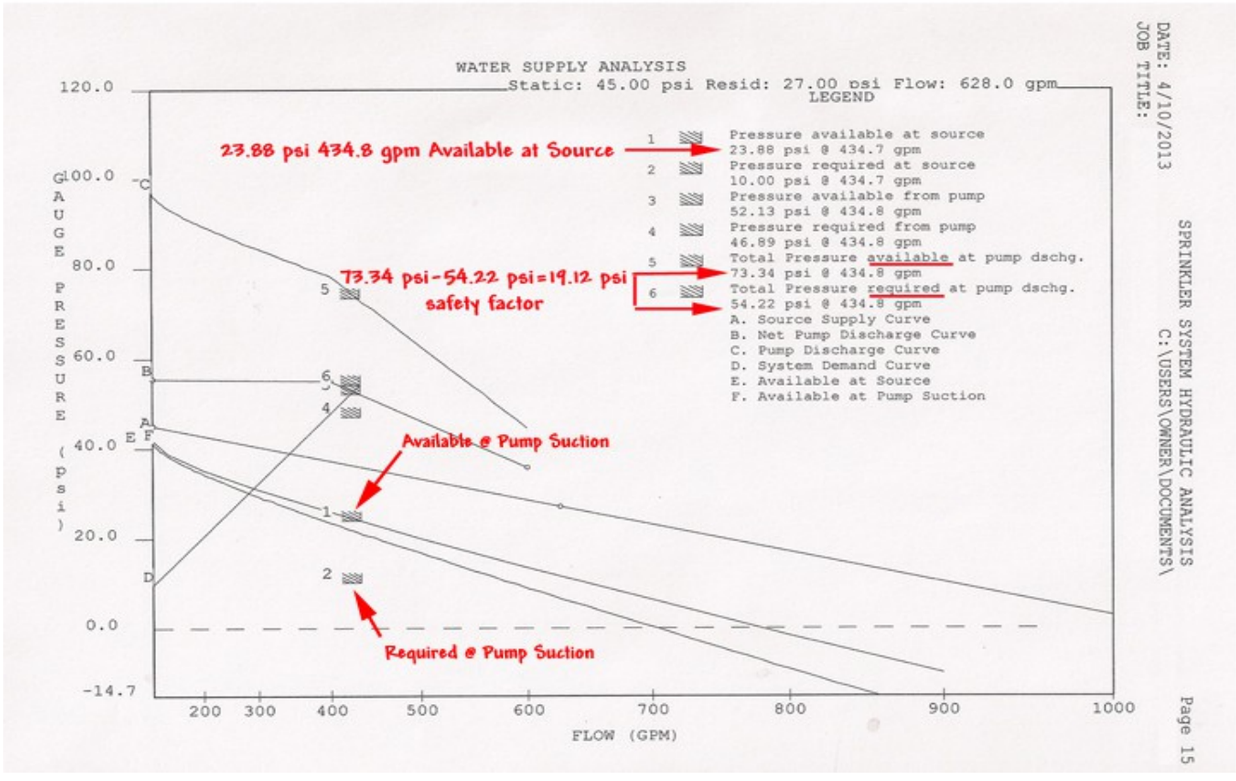
NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
1	13.0	- - - -	39.1	- - -
2	14.2	- - - -	37.8	- - -
		snipped		
70	13.0	- - - -	40.1	- - -
SRC	6.8	SOURCE	10.0	434.7
72	13.0	- - - -	39.9	- - -
		snipped		
T2	20.3	- - - -	40.9	- - -
BOR	2.4	- - - -	50.9	- - -
P1	2.0	- - - -	54.2	- - -
P2	2.0	- - - -	7.3	- - -
P3	2.0	- - - -	7.4	- - -
P4	1.9	- - - -	7.7	- - -
P5	1.9	- - - -	7.7	- - -
P6	1.9	- - - -	7.8	- - -
P7	1.9	- - - -	7.9	- - -
P8	1.9	- - - -	10.3	- - -
P9	1.9	- - - -	10.3	- - -
F&S	0.5	- - - -	11.0	- - -
U1	0.0	- - - -	11.3	- - -
TAP	0.0	- - - -	12.1	- - -

Using a "Required" pressure of 10 psi (it can be any number I want as long as it isn't negative) the 10.0 psiwill show at the "required" but what is really available here is the 23.9 psi and not 10.0 psi.

P1 = Pump discharge where 54.22 psi is required but in actual practice there is 73.34 psi available which providesthe +10.00 psi "cushion".

P2 = Pump suction where 7.3 psi is required and where I believe the confusion comes in. Some reviewers might think 7.3 psi is what is available but this isn't the case but when a review sees the 7.3 psi it causes alarm bells to go go off. As far as what we really can expect to actually read you can add the 19.12 psi cushion to the 7.3 psi and end up with about 27.4 psi.



I have a 19.12 psi cushion (safety factor) between the available and required pressures at the pump discharge.

To get rid of the <20 psi suction pressures in the pump suction line all we have to do is set the required minimum pressure to 23.9 psi and the 19.11 safety factor “cushion” remains unchanged.

This is set with a 23.9 psi required pressure - I use HASS

WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	@ FLOW (GPM)	AVAIL. PRESS. (PSI)	@ TOTAL DEMAND (GPM)	REQ'D PRESS. (PSI)
SRC	45.0	27.0	628.0	23.9	684.7	23.9

With 250 gpm hose stream the system requires a total of 684.7 gpm at 23.9 psi.

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	684.7 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	250.0 GPM
OTHER HOSE STREAM ALLOWANCES	0.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	434.7 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)
1	13.0	- - - -	39.1	- - -
2	14.2	- - - -	37.8	- - -
		snipped		
70	13.0	- - - -	40.1	- - -
SRC	6.8	SOURCE	23.9	434.7
72	13.0	- - - -	39.9	- - -
		snipped		
T2	20.3	- - - -	40.9	- - -
BOR	2.4	- - - -	50.9	- - -
P1	2.0	- - - -	54.2	- - -
P2	2.0	- - - -	21.2	- - -
P3	2.0	- - - -	21.3	- - -
P4	1.9	- - - -	21.5	- - -
P5	1.9	- - - -	21.6	- - -
P6	1.9	- - - -	21.6	- - -
P7	1.9	- - - -	21.8	- - -
P8	1.9	- - - -	24.2	- - -
P9	1.9	- - - -	24.2	- - -
F&S	0.5	- - - -	24.9	- - -
U1	0.0	- - - -	25.2	- - -
TAP	0.0	- - - -	25.9	- - -

Using a “Required” pressure of 23.9 psi (it can be any number I want as long as it isn’t negative) the 23.9 psi will show at the “required” which is what is really available.

P1 = Pump discharge where 54.22 psi is required but in actual practice there is 73.34 psi available which provides the +10.00 psi “cushion”.

P2 = Pump suction where 21.2 psi is required which is what the suction gauge reading should read. To some it may appear there isn’t a cushion but the 19.11 psi cushion exists as shown on the Water Supply Analysis below.