NEW YORK UNIVERSITY
SIX METRO TECH CENTER
BROOKLYN,NY 11201

HYDRAULIC CALCULATIONS FOR

DRAWING NUMBER: DATE: MAY 6, 2015

-DESIGN DATA-

REMOTE AREA NUMBER: REMOTE AREA LOCATION:

OCCUPANCY CLASSIFICATION:
DENSITY: gpm/sq. ft.
AREA OF APPLICATION: sq. ft.

COVERAGE PER SPRINKLER: sq. ft.
TYPE OF SPRINKLERS CALCULATED:
NUMBER OF SPRINKLERS CALCULATED:

*IN-RACK SPRINKLER DEMAND: gpm
HOSE-STREAM DEMAND: gpm
TOTAL WATER REQUIRED (INCLUDING HOSE): gpm
FLOW AND PRESSURE (AT BASE OF RISER): gpm @ psi

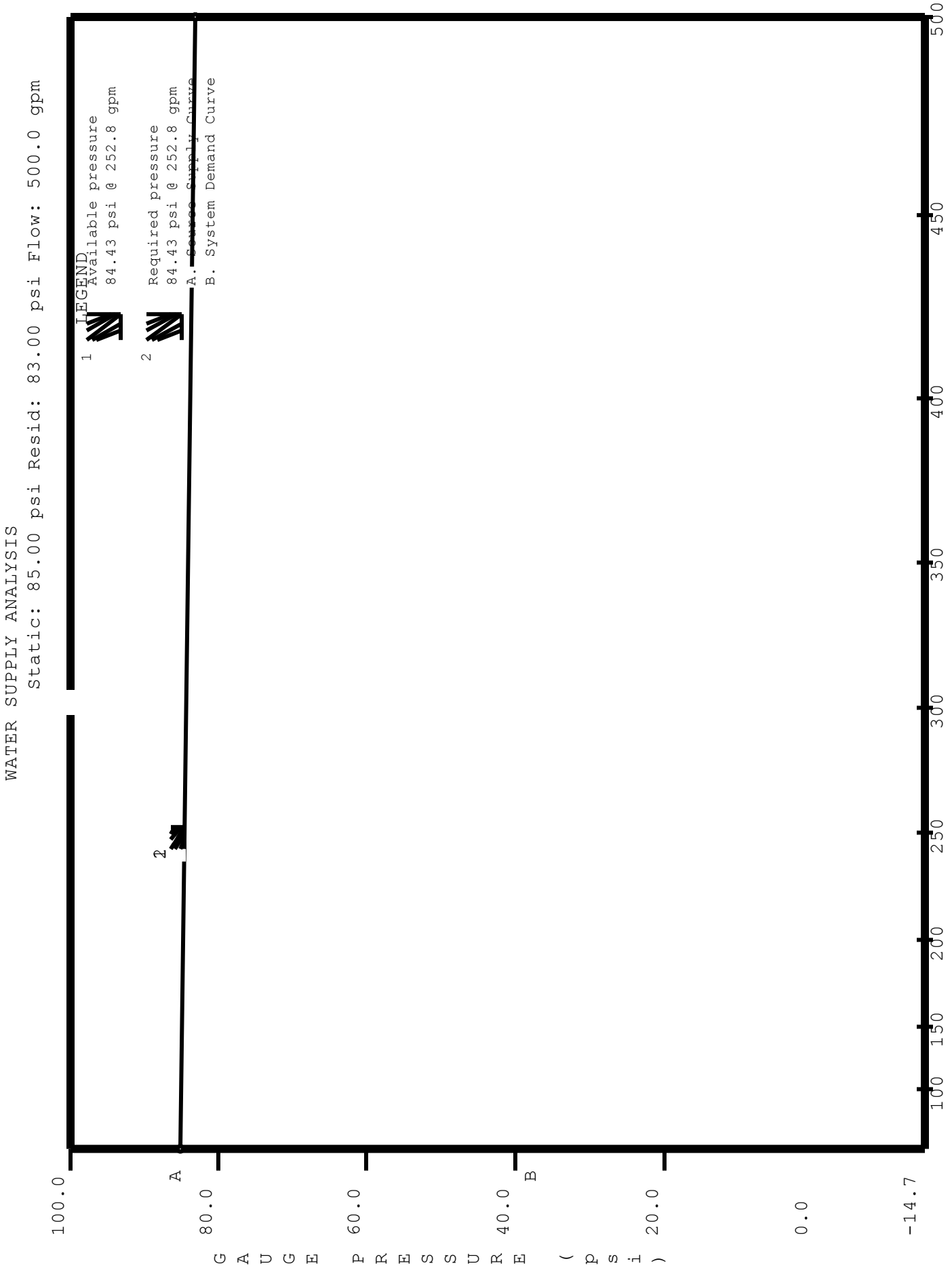
TYPE OF SYSTEM:
*VOLUME OF DRY OR PREACTION SYSTEM:
*DETAILS:
WATER SUPPLY
Source: Test Date: Test By:
Location:
Static: psi Residual: psi Flow: gpm
Source Elevation Relative to Finished Floor Level: ft.

INSTALLING CONTRACTOR
Name:
Address:
Phone: Certification number:

NAME OF DESIGNER:
AUTHORITY HAVING JURISDICTION:

NOTES:
Calculations performed by HASS under license # 27021847 ,
granted by HRS SYSTEMS, INC.
(Notes continue after pipe calculations results.)

DATE: 5/6/2015 C:\WORK\FLUID\TARIQ_HASS.SDF
JOB TITLE:



DATE: 5/6/2015 C:\WORK\FLUID\TARIQ_HASS.SDF
JOB TITLE:

NFPA WATER SUPPLY DATA

SOURCE NODE TAG	STATIC PRESS. (PSI)	RESID. PRESS. (PSI)	@ FLOW (GPM)	AVAIL. PRESS. (PSI)	@ TOTAL DEMAND (GPM)	REQ'D PRESS. (PSI)
SOURCE	85.0	83.0	500.0	84.4	252.8	

AGGREGATE FLOW ANALYSIS:

TOTAL FLOW AT SOURCE	252.8 GPM
TOTAL HOSE STREAM ALLOWANCE AT SOURCE	0.0 GPM
OTHER HOSE STREAM ALLOWANCES	0.0 GPM
TOTAL DISCHARGE FROM ACTIVE SPRINKLERS	252.8 GPM

NODE ANALYSIS DATA

NODE TAG	ELEVATION (FT)	NODE TYPE	PRESSURE (PSI)	DISCHARGE (GPM)	NOTES
1	80.0	K= 4.90	11.9	16.9	
2	80.0	- - - -	13.6	- - -	
3	80.0	K= 4.90	13.2	17.8	
4	80.0	K= 4.90	16.2	19.7	
5	80.0	K= 4.90	17.5	20.5	
6	80.0	- - - -	15.3	- - -	
7	80.0	K= 4.90	12.1	17.0	
8	80.0	K= 4.90	9.2	14.8	
9	80.0	K= 4.90	8.4	14.2	
10	80.0	- - - -	21.1	- - -	
11	80.0	K= 4.90	20.3	22.1	
12	80.0	K= 4.90	25.3	24.6	
13	80.0	- - - -	26.5	- - -	
14	80.0	K= 4.90	23.5	23.8	
15	80.0	K= 4.90	20.1	22.0	
16	80.0	- - - -	16.4	- - -	
17	80.0	K= 4.90	15.9	19.6	
18	80.0	K= 4.90	16.4	19.9	
19	0.0	- - - -	72.4	- - -	
20	0.0	- - - -	84.4	- - -	
SOURCE	0.0	SOURCE	84.4	252.8	

NFPA PIPE DATA

Pipe Tag / Frm Node / To Node	El (ft)	K-fac / PT	Add Fl (q) / Tot.(Q)	Add Fl To Node/ Disch	Nom ID / Act ID	Fit: Eq.Ln. (ft.)	L / F / T	C / Pf/ft.	(Pt) / (Pe) / (Pf)	Notes
Pipe: 1		4.90	16.9	Disch			17.17	120	1.6	
2	80.0	13.6	0.0		1.000	----	0.00		0.0	
1	80.0	11.9	16.9		1.049		17.17	0.095	1.6	
Pipe: 2		4.90	17.8	Disch			3.67	120	0.4	
2	80.0	13.6	0.0		1.000	----	0.00		0.0	
3	80.0	13.2	17.8		1.049		3.67	0.105	0.4	
Pipe: 3		0.0	16.9	1			7.25	120	2.6	
4	80.0	16.2	17.8	3	1.000	----	0.00		0.0	
2	80.0	13.6	34.7		1.049		7.25	0.361	2.6	
Pipe: 4		4.90	19.7	Disch			6.00	120	1.3	
5	80.0	17.5	34.7	2	1.250	----	0.00		0.0	
4	80.0	16.2	54.4		1.380		6.00	0.218	1.3	
Pipe: 5		0.0	0.0				13.33	120	2.1	
5	80.0	17.5	46.1	7	1.250	----	0.00		0.0	
6	80.0	15.3	46.1		1.380		13.33	0.160	2.1	
Pipe: 6		4.90	17.0	Disch			20.33	120	3.3	
6	80.0	15.3	29.1	8	1.250	----	0.00		0.0	
7	80.0	12.1	46.1		1.380		20.33	0.160	3.3	
Pipe: 7		4.90	14.8	Disch			11.25	120	2.9	
7	80.0	12.1	14.2	9	1.000	----	0.00		0.0	
8	80.0	9.2	29.1		1.049		11.25	0.260	2.9	
Pipe: 8		4.90	14.2	Disch			10.50	120	0.7	
8	80.0	9.2	0.0		1.000	----	0.00		0.0	
9	80.0	8.4	14.2		1.049		10.50	0.069	0.7	
Pipe: 9		4.90	20.5	Disch			27.33	120	3.7	
10	80.0	21.1	54.4	4	2.000	----	0.00		0.0	
5	80.0	17.5	121.0		2.067		27.33	0.134	3.7	
Pipe: 10		4.90	22.1	Disch			5.50	120	0.9	
10	80.0	21.1	0.0		1.000	----	0.00		0.0	
11	80.0	20.3	22.1		1.049		5.50	0.156	0.9	
Pipe: 11		0.0	121.0	5			22.67	120	4.1	
12	80.0	25.3	22.1	11	2.000	----	0.00		0.0	
10	80.0	21.1	143.0		2.067		22.67	0.182	4.1	
Pipe: 12		4.90	24.6	Disch			5.17	120	1.3	
13	80.0	26.5	143.0	10	2.000	----	0.00		0.0	
12	80.0	25.3	167.7		2.067		5.17	0.244	1.3	

Pipe Tag / Frm Node / To Node	El (ft)	K-fac / PT	Add Fl (q) / Tot.(Q)	Add Fl To Node/ Disch	Nom ID / Act ID	Fit: Eq.Ln. (ft.)	L / F / T	C / Pf/ft.	(Pt) / (Pe) / (Pf)	Notes
Pipe: 13		4.90	23.8	Disch			12.75	120	3.0	
13	80.0	26.5	61.4	15	1.500	----	0.00		0.0	
14	80.0	23.5	85.2		1.610		12.75	0.236	3.0	
Pipe: 14		4.90	22.0	Disch			12.42	120	3.4	
14	80.0	23.5	39.4	16	1.250	----	0.00		0.0	
15	80.0	20.1	61.4		1.380		12.42	0.273	3.4	
Pipe: 15		0.0	0.0				8.08	120	3.7	
15	80.0	20.1	39.4		1.000	----	0.00		0.0	
16	80.0	16.4	39.4		1.049		8.08	0.457	3.7	
Pipe: 16		4.90	19.6	Disch			4.00	120	0.5	
16	80.0	16.4	0.0		1.000	----	0.00		0.0	
17	80.0	15.9	19.6		1.049		4.00	0.125	0.5	
Pipe: 17		4.90	19.9	Disch			2.00	120	0.0	
16	80.0	16.4	0.0		2.000	----	0.00		0.0	
18	80.0	16.4	19.9		2.067		2.00	0.005	0.0	
Pipe: 18		0.0	85.2	14			146.83	120	45.9	
19	0.0	72.4	167.7	12	3.000	----	0.00		-34.7	
13	80.0	26.5	252.8		3.068		146.83	0.076	11.2	
Pipe: 19			252.8	13	Fixed Pressure Loss Device					
20	0.0	84.4	0.2		12.0 psi, 253.0 gpm					
19	0.0	72.4	253.0							
Pipe: 20		Source	0.0				2.00	120	0.0	
SOURCE	0.0	84.4	252.8	19	4.000	----	0.00		0.0	
20	0.0	84.4	252.8		4.026		2.00	0.020	0.0	

NOTES (HASS):

(1) Calculations were performed by the HASS 8.5 computer program
under license no. 27021847 granted by
HRS Systems, Inc.
208 Southside Square
Petersburg, TN 37144
(931) 659-9760

(2) The system has been calculated to provide an average
imbalance at each node of 0.018 gpm and a maximum
imbalance at any node of 0.179 gpm.

(3) Total pressure at each node is used in balancing the system.
Maximum water velocity is 16.0 ft/sec at pipe 12.

(4) Items listed in bold print on the cover sheet

are automatically transferred from the calculation report.