

1300 CASTLEHILL AVENUE Fire Sprinkler Reports

for

MHA
545 EIGHT AVENUE
NEW YORK, NY 10018



01/15/2020

Prepared By:

Nicholas Tucci, P.E.
TSF Engineering, P.C.
200 Park Avenue Suite 520
NY, NY 10003
212-253-7303
01/15/2020



General Project Data Report

General Data

Project Title:	1300 CASTLEHILL AVENUE	Project File Name:	Castlehill..fiw
Designed By:	Nicholas Tucci, P.E.	Date:	01/15/2020
Code Reference:	NFPA 13	Approving Agency:	NYC DOB
	TSF JOB # 18209		
Client Name:	MHA	Phone:	212-398-5700
Address:	545 EIGHT AVENUE	City, State Zip Code:	NEW YORK, NY 10018
Company Name:	TSF Engineering, P.C.	Representative:	NICHOLAS TUCCI
Company Address:	200 Park Avenue Suite 520	City And State:	NY, NY 10003
Phone:	212-253-7303		
Building Name:	7 STORY RESIDENTIAL APARTMENT	Building Owner:	
Contact at Building:		Phone at Building:	
Address Of Building:	1300 CASTLEHILL AVENUE	City, State Zip Code:	BRONX NY.

Project Data

Description Of Hazard:	Ordinary Hazard	Sprinkler System Type:	Wet
Design Area Of Water Application:	700 ft ²	Maximum Area Per Sprinkler:	116 ft ²
Default Sprinkler K-Factor:	5.62 K	Default Pipe Material:	SCHED 40 WET STEEL
Inside Hose Stream Allowance:	0.00 gpm	Outside Hose Stream Allowance:	0.00 gpm
In Rack Sprinkler Allowance:	0.00 gpm		

Sprinkler Specifications

Make:	Reliable	Model:	F1FR
Size:	1/2"	Temperature Rating:	155 F

Water Supply Test Data

Source Of Information:	DEP	Date Of Test:	----
Test Hydrant ID:			
Hydrant Elevation:	0 ft	Static Pressure:	38.00 psi
Test Flow Rate:	500.00 gpm	Test Residual Pressure:	37.00 psi
Calculated System Flow Rate:	153.94 gpm	Calculated Inflow Residual Pressure:	-18.74 psi
Available Residual Pressure At System Flow:	37.89 psi		

Calculation Project Data

Calculation Mode:	Demand	Minimum Desired Flow Density:	0.15 gpm/ft ²
HMD Minimum Residual Pressure:	7.00 psi	Number Of Inactive Pipes:	0
Number Of Active Nodes:	19	Number Of Inactive Sprinklers:	0
Number Of Active Pipes:	18		
Number Of Active Sprinklers:	7		



Fire Sprinkler Input Data

Node Input Data

Node No.	Node Description Branch Description	Area Group Branch Dia. (in)	Sprinkler KFactor (K) Branch Len. (ft)	Pressure Estimate (psi) Branch Std Fittings	Node Elev (ft) Branch Non- Std Fittings (ft)	Non-Sprinkler Flow (gpm) Branch Sprk KFactor (K)
1	Sprinkler ----	---- 0.000	5.62 0.0	9.59 ----	75.00 0.0	0.00 0.00
2	Sprinkler ----	---- 0.000	5.62 0.0	11.40 ----	75.00 0.0	0.00 0.00
3	Sprinkler ----	---- 0.000	5.62 0.0	16.12 ----	75.00 0.0	0.00 0.00
4	Sprinkler ----	---- 0.000	5.62 0.0	15.47 ----	75.00 0.0	0.00 0.00
5	Sprinkler ----	---- 0.000	5.62 0.0	38.80 ----	0.00 0.0	0.00 0.00
6	Sprinkler ----	---- 0.000	5.62 0.0	10.73 ----	75.00 0.0	0.00 0.00
7	Sprinkler ----	---- 0.000	5.62 0.0	12.02 ----	75.00 0.0	0.00 0.00
8	No Discharge ----	---- 0.000	N/A 0.0	66.26 ----	0.00 0.0	0.00 0.00
9	No Discharge ----	---- 0.000	N/A 0.0	56.26 ----	0.00 0.0	0.00 0.00
10	No Discharge ----	---- 0.000	N/A 0.0	56.19 ----	0.00 0.0	0.00 0.00
11	No Discharge ----	---- 0.000	N/A 0.0	56.19 ----	0.00 0.0	0.00 0.00
12	No Discharge ----	---- 0.000	N/A 0.0	56.14 ----	0.00 0.0	0.00 0.00
13	No Discharge ----	---- 0.000	N/A 0.0	56.13 ----	0.00 0.0	0.00 0.00
14	No Discharge ----	---- 0.000	N/A 0.0	55.88 ----	0.00 0.0	0.00 0.00
15	No Discharge ----	---- 0.000	N/A 0.0	25.49 ----	70.00 0.0	0.00 0.00
16	No Discharge ----	---- 0.000	N/A 0.0	25.32 ----	70.00 0.0	0.00 0.00
17	No Discharge ----	---- 0.000	N/A 0.0	23.14 ----	75.00 0.0	0.00 0.00



Fire Sprinkler Input Data

Node Input Data (cont'd)

Node No.	Node Description Branch Description	Area Group Branch Dia. (in)	Sprinkler KFactor (K) Branch Len. (ft)	Pressure Estimate (psi) Branch Stnd Fittings	Node Elev (ft) Branch Non- Stnd Fittings (ft)	Non-Sprinkler Flow (gpm) Branch Sprk KFactor (K)
18	No Discharge ----	---- 0.000	N/A 0.0	16.88 ----	75.00 0.0	0.00 0.00
19	No Discharge ----	---- 0.000	N/A 0.0	13.13 ----	75.00 0.0	0.00 0.00



Fire Sprinkler Input Data

Pipe Input Data

Beg. Node	End. Node	Pipe Description	Nominal Diameter (inch)	Type Group	Fitting Data	Nominal Length (feet)	Fitting Length (feet)	Total Length (feet)	CFactor (gpm/inc h-psi)
8	9	Backflo Prev	10.000	Loss					
9	10	SCHED 40 WET STEEL	6.000	0	3E	21.00	42.00	63.00	120
10	11	Fire Pump 85.000 Gain		Pump					
11	12	SCHED 40 WET STEEL	6.000	0	2EG	12.00	31.00	43.00	120
12	13	SCHED 40 WET STEEL	6.000	0		12.00	0.00	12.00	120
13	14	SCHED 40 WET STEEL	6.000	0	6E	144.00	84.00	228.00	120
14	15	SCHED 40 WET STEEL	6.000	0		70.00	0.00	70.00	120
15	16	SCHED 40 WET STEEL	6.000	0	6E	70.00	84.00	154.00	120
16	17	SCHED 40 WET STEEL	6.000	0		10.00	0.00	10.00	120
17	18	SCHED 40 WET STEEL	2.000	0	GC	18.00	12.00	30.00	120
18	3	SCHED 40 WET STEEL	1.250	0		3.00	0.00	3.00	120
3	2	SCHED 40 WET STEEL	1.000	0		12.00	0.00	12.00	120
2	1	SCHED 40 WET STEEL	1.000	0	2E	14.00	4.00	18.00	120
18	4	SCHED 40 WET STEEL	1.000	0		9.00	0.00	9.00	120
18	19	SCHED 40 WET STEEL	1.250	0		10.00	0.00	10.00	120
19	6	SCHED 40 WET STEEL	1.000	0		3.00	0.00	3.00	120
6	5	SCHED 40 WET STEEL	1.000	0		12.00	0.00	12.00	120
19	7	SCHED 40 WET STEEL	1.000	0		9.00	0.00	9.00	120



Fire Sprinkler Output Data

Group Peak Sprinkler Output Data

Flowing Sprinkler Node No.	Area Group Code	Sprinkler KFactor (K)	Sprinkler Elevation (feet)	Residual Pressure (psi)	Flowing Area (ft²)	Flowing Density (gpm/ft²)	Sprinkler Discharge (gpm)
1		5.62	75.00	9.59	116.00	0.150	17.40
Sub Totals For Non-Group					116.00	0.150	17.40
2		5.62	75.00	11.40	116.00	0.164	18.97
Sub Totals For Non-Group					116.00	0.164	18.97
3		5.62	75.00	16.12	116.00	0.195	22.56
Sub Totals For Non-Group					116.00	0.195	22.56
4		5.62	75.00	15.47	116.00	0.191	22.10
Sub Totals For Non-Group					116.00	0.191	22.10
5		5.62	0.00	38.80	116.00	0.302	35.01
Sub Totals For Non-Group					116.00	0.302	35.01
6		5.62	75.00	10.73	116.00	0.159	18.41
Sub Totals For Non-Group					116.00	0.159	18.41
7		5.62	75.00	12.02	116.00	0.168	19.48
Sub Totals For Non-Group					116.00	0.168	19.48
Totals For All Groups					812.00	0.190	153.94



Fire Sprinkler Output Summary

Hydraulically Most Demanding Sprinkler Node

HMD Sprinkler Node Number:	1
HMD Actual Residual Pressure:	9.59 psi
HMD Actual Flow:	17.40 gpm

Sprinkler Summary

Sprinkler System Type:	Wet
Specified Area Of Application:	700.00 ft ²
Minimum Desired Density:	0.150 gpm/ft ²
Application Average Density:	0.220 gpm/ft ²
Application Average Area Per Sprinkler:	100.00 ft ²
Sprinkler Flow:	153.94 gpm
Average Sprinkler Flow:	21.99 gpm

Flow Velocity And Imbalance Summary

Maximum Flow Velocity (In Pipe 6 - 19)	19.83 ft/sec
Maximum Velocity Pressure (In Pipe 6 - 19)	2.65 psi
Allowable Maximum Nodal Pressure Imbalance:	1.0000 psi
Actual Maximum Nodal Pressure Imbalance:	0.0000 psi
Actual Average Nodal Pressure Imbalance:	0.0000 psi
Actual Maximum Nodal Flow Imbalance:	0.0000 gpm
Actual Average Nodal Flow Imbalance:	0.0000 gpm

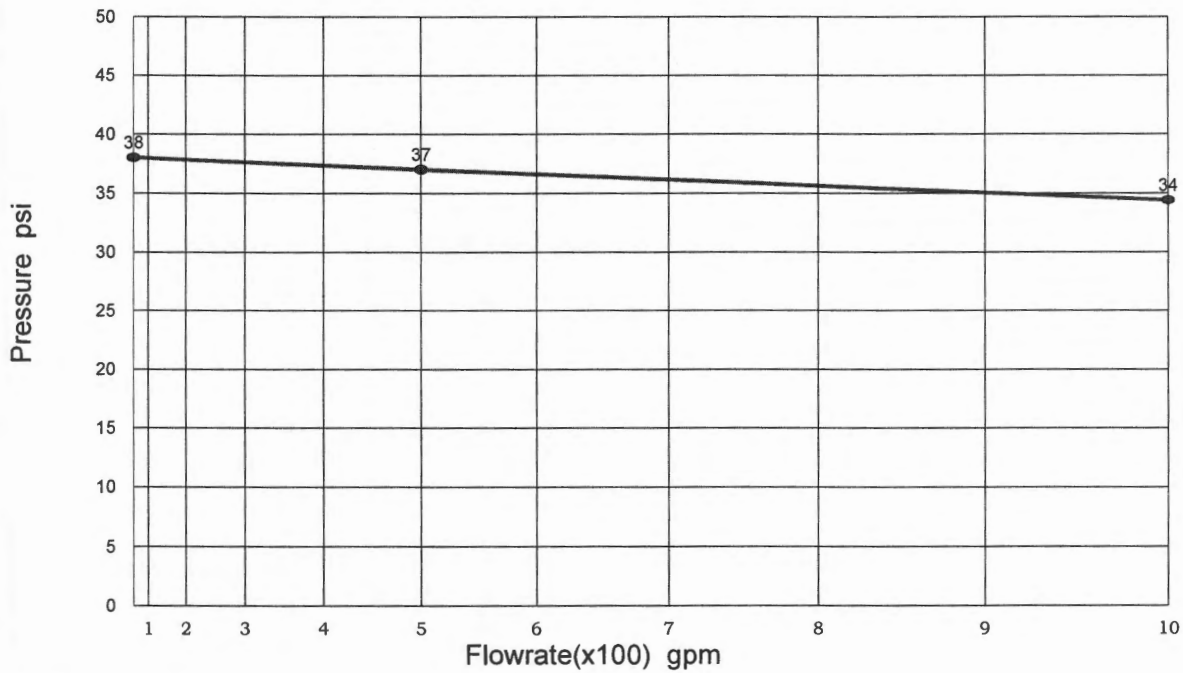
Overall Network Summary

Number Of Unique Pipe Sections:	18
Number Of Flowing Sprinklers:	7
Pipe System Water Volume:	515.57 gal
Sprinkler Flow:	153.94 gpm
Non-Sprinkler Flow:	0.00 gpm
Minimum Required Residual Pressure At System Inflow Node:	-18.74 psi
Demand Flow At System Inflow Node:	153.94 gpm



Fire Sprinkler Output Data

Hydraulic Supply/Demand Graph



Supply Curve Data

Static Pressure: 38 psi
Test Residual Pressure: 37 psi
Test Flow Rate: 500 gpm

Demand Curve Data

Calculated Residual Pressure: -18.74 psi
Calculated Flow Rate: 153.94 gpm
Excess Available Residual Pressure At Calculated Flow: 56.63 psi
Pressure Required For First Sprinkler Downstream From Inflow Node To Flow: -18.74 psi

1300 CASTLE HILL AVENUE, DRY SYSTEM Fire Sprinkler Reports

for

Margulies Hoelzli Architecture

545 Eighth Avenue
New York, NY 10018

Prepared By:

TSF Engineering
TSF Engineering, P.C.
200 Park Avenue South
New York, NY 10003
2122537303
January 22, 2020





General Project Data Report

General Data

Project Title:	1300 Castle Hill Avenue, Dry System	Project File Name:	1300CASTLEHILLDRY..fiw
Designed By:	TSF Engineering	Date:	January 22, 2020
Code Reference:	NFPA 13	Approving Agency:	NYC DOB
Client Name:	Margulies Hoelzli Architecture	Phone:	2123985700
Address:	545 Eighth Avenue	City, State Zip Code:	New York, NY 10018
Company Name:	TSF Engineering, P.C.	Representative:	Nick Tucci
Company Address:	200 Park Avenue South	City And State:	New York, NY 10003
Phone:	2122537303		
Building Name:		Building Owner:	
Contact at Building:		Phone at Building:	
Address Of Building:	1300 Castle Hill Avenue	City, State Zip Code:	Bronx, NY 10462

Project Data

Description Of Hazard:	Ordinary 1	Sprinkler System Type:	Dry
Design Area Of Water Application:	1950 ft ²	Maximum Area Per Sprinkler:	130 ft ²
Default Sprinkler K-Factor:	5.62 K	Default Pipe Material:	SCHED 40 WET STEEL
Inside Hose Stream Allowance:	0.00 gpm	Outside Hose Stream Allowance:	0.00 gpm
In Rack Sprinkler Allowance:	0.00 gpm		

Sprinkler Specifications

Make:	RELIABLE	Model:	F1
Size:	0.5"	Temperature Rating:	155 F

Water Supply Test Data

Source Of Information:	NYC DEP	Date Of Test:	06.20.19
Test Hydrant ID:			
Hydrant Elevation:	2 ft	Static Pressure:	38.00 psi
Test Flow Rate:	500.00 gpm	Test Residual Pressure:	37.00 psi
Calculated System Flow Rate:	452.54 gpm	Calculated Inflow Residual Pressure:	-29.04 psi
Available Residual Pressure At System Flow:	37.17 psi		

Calculation Project Data

Calculation Mode:	Demand	Minimum Desired Flow Density:	0.15 gpm/ft ²
HMD Minimum Residual Pressure:	7.00 psi		
Number Of Active Nodes:	38	Number Of Inactive Pipes:	0
Number Of Active Pipes:	37	Number Of Inactive Sprinklers:	0
Number Of Active Sprinklers:	17		



Fire Sprinkler Input Data

Node Input Data

Node No.	Node Description Branch Description	Area Group Branch Dia. (in)	Sprinkler KFactor (K) Branch Len. (ft)	Pressure Estimate (psi) Branch Std Fittings	Node Elev (ft) Branch Non- Std Fittings (ft)	Non-Sprinkler Flow (gpm) Branch Sprk KFactor (K)
8	No Discharge ----	---- 0.000	N/A 0.0	55.96 ----	-5.00 0.0	0.00 0.00
9	No Discharge ----	---- 0.000	N/A 0.0	53.78 ----	-9.00 0.0	0.00 0.00
10	No Discharge ----	---- 0.000	N/A 0.0	53.00 ----	-9.00 0.0	0.00 0.00
11	No Discharge ----	---- 0.000	N/A 0.0	53.00 ----	-9.00 0.0	0.00 0.00
101	Sprinkler ----	---- 0.000	5.62 0.0	19.03 ----	-13.00 0.0	0.00 0.00
102	Sprinkler ----	---- 0.000	5.62 0.0	13.84 ----	-13.00 0.0	0.00 0.00
103	Sprinkler ----	---- 0.000	5.62 0.0	12.04 ----	-13.00 0.0	0.00 0.00
104	No Discharge ----	---- 0.000	N/A 0.0	21.71 ----	-13.50 0.0	0.00 0.00
105	Sprinkler ----	---- 0.000	5.62 0.0	21.86 ----	-13.00 0.0	0.00 0.00
106	Sprinkler ----	---- 0.000	5.62 0.0	21.21 ----	-13.00 0.0	0.00 0.00
107	No Discharge ----	---- 0.000	N/A 0.0	24.88 ----	-13.50 0.0	0.00 0.00
108	Sprinkler ----	---- 0.000	5.62 0.0	23.83 ----	-13.00 0.0	0.00 0.00
109	Sprinkler ----	---- 0.000	5.62 0.0	22.41 ----	-13.00 0.0	0.00 0.00
110	No Discharge ----	---- 0.000	N/A 0.0	26.27 ----	-13.50 0.0	0.00 0.00
111	Sprinkler ----	---- 0.000	5.62 0.0	26.41 ----	-13.00 0.0	0.00 0.00
112	Sprinkler ----	---- 0.000	5.62 0.0	24.84 ----	-13.00 0.0	0.00 0.00
113	No Discharge ----	---- 0.000	N/A 0.0	29.06 ----	-13.50 0.0	0.00 0.00



Fire Sprinkler Input Data

Node Input Data (cont'd)

Node No.	Node Description Branch Description	Area Group Branch Dia. (in)	Sprinkler KFactor (K) Branch Len. (ft)	Pressure Estimate (psi) Branch Std Fittings	Node Elev (ft) Branch Non- Std Fittings (ft)	Non-Sprinkler Flow (gpm) Branch Sprk KFactor (K)
114	Sprinkler ----	0.000	5.62 0.0	30.79 ----	-13.00 0.0	0.00 0.00
115	No Discharge ----	0.000	N/A 0.0	33.82 ----	-13.50 0.0	0.00 0.00
116	No Discharge ----	0.000	N/A 0.0	38.78 ----	-13.50 0.0	0.00 0.00
117	No Discharge ----	0.000	N/A 0.0	39.20 ----	-13.50 0.0	0.00 0.00
118	No Discharge ----	0.000	N/A 0.0	38.27 ----	-13.50 0.0	0.00 0.00
119	Sprinkler ----	0.000	5.62 0.0	27.29 ----	-13.00 0.0	0.00 0.00
120	Sprinkler ----	0.000	5.62 0.0	27.53 ----	-13.00 0.0	0.00 0.00
121	No Discharge ----	0.000	N/A 0.0	30.95 ----	-13.50 0.0	0.00 0.00
122	Sprinkler ----	0.000	5.62 0.0	25.69 ----	-13.00 0.0	0.00 0.00
123	Sprinkler ----	0.000	5.62 0.0	25.80 ----	-13.00 0.0	0.00 0.00
124	No Discharge ----	0.000	N/A 0.0	29.16 ----	-13.50 0.0	0.00 0.00
125	Sprinkler ----	0.000	5.62 0.0	21.56 ----	-13.00 0.0	0.00 0.00
126	Sprinkler ----	0.000	5.62 0.0	21.66 ----	-13.00 0.0	0.00 0.00
127	No Discharge ----	0.000	N/A 0.0	24.55 ----	-13.50 0.0	0.00 0.00
128	Sprinkler ----	0.000	5.62 0.0	20.13 ----	-13.00 0.0	0.00 0.00
129	No Discharge ----	0.000	N/A 0.0	46.25 ----	-13.50 0.0	0.00 0.00
130	No Discharge ----	0.000	N/A 0.0	47.18 ----	-13.50 0.0	0.00 0.00



Fire Sprinkler Input Data

Node Input Data (cont'd)

Node No.	Node Description Branch Description	Area Group Branch Dia. (in)	Sprinkler KFactor (K) Branch Len. (ft)	Pressure Estimate (psi) Branch Std Fittings	Node Elev (ft) Branch Non- Std Fittings (ft)	Non-Sprinkler Flow (gpm) Branch Sprk KFactor (K)
131	No Discharge ----	---- 0.000	N/A 0.0	43.48 ----	-2.00 0.0	0.00 0.00
132	No Discharge ----	---- 0.000	N/A 0.0	50.47 ----	-8.00 0.0	0.00 0.00
133	No Discharge ----	---- 0.000	N/A 0.0	48.64 ----	-2.00 0.0	0.00 0.00
134	No Discharge ----	---- 0.000	N/A 0.0	56.71 ----	-9.00 0.0	0.00 0.00



Fire Sprinkler Input Data

Pipe Input Data

Beg. Node	End. Node	Pipe Description	Nominal Diameter (inch)	Type Group	Fitting Data	Nominal Length (feet)	Fitting Length (feet)	Total Length (feet)	CFactor (gpm/inc h-psi)
101	104	SCHED 40 WET STEEL	1.000	0	ET	6.00	7.00	13.00	120
102	104	SCHED 40 WET STEEL	1.000	0	ET	9.00	7.00	16.00	120
103	102	SCHED 40 WET STEEL	1.000	0	E	12.50	2.00	14.50	120
105	107	SCHED 40 WET STEEL	1.000	0	ET	6.00	7.00	13.00	120
106	107	SCHED 40 WET STEEL	1.000	0	ET	9.50	7.00	16.50	120
104	107	SCHED 40 WET STEEL	1.250	0		10.50	0.00	10.50	120
108	110	SCHED 40 WET STEEL	1.000	0	ET	2.50	7.00	9.50	120
109	110	SCHED 40 WET STEEL	1.000	0	ET	9.50	7.00	16.50	120
107	110	SCHED 40 WET STEEL	2.000	0		11.00	0.00	11.00	120
111	113	SCHED 40 WET STEEL	1.000	0	ET	2.50	7.00	9.50	120
112	113	SCHED 40 WET STEEL	1.000	0	ET	9.50	7.00	16.50	120
110	113	SCHED 40 WET STEEL	2.000	0		11.00	0.00	11.00	120
113	115	SCHED 40 WET STEEL	2.000	0		11.00	0.00	11.00	120
114	115	SCHED 40 WET STEEL	1.000	0	ET	2.50	7.00	9.50	120
115	116	SCHED 40 WET STEEL	3.000	0	E2T	25.00	37.00	62.00	120
116	117	SCHED 40 WET STEEL	4.000	0		20.00	0.00	20.00	120
117	118	SCHED 40 WET STEEL	3.000	0	T	5.00	15.00	20.00	120
118	121	SCHED 40 WET STEEL	2.000	0		23.00	0.00	23.00	120
119	121	SCHED 40 WET STEEL	1.000	0	ET	6.00	7.00	13.00	120
120	121	SCHED 40 WET STEEL	1.000	0	ET	5.00	7.00	12.00	120
121	124	SCHED 40 WET STEEL	2.000	0		11.00	0.00	11.00	120
122	124	SCHED 40 WET STEEL	1.000	0	ET	6.00	7.00	13.00	120
123	124	SCHED 40 WET STEEL	1.000	0	ET	5.50	7.00	12.50	120
125	127	SCHED 40 WET STEEL	1.000	0	ET	6.00	7.00	13.00	120
126	127	SCHED 40 WET STEEL	1.000	0	ET	5.50	7.00	12.50	120
124	127	SCHED 40 WET STEEL	1.250	0		11.00	0.00	11.00	120



Fire Sprinkler Input Data

Pipe Input Data (cont'd)

Beg. Node	End. Node	Pipe Description	Nominal Diameter (inch)	Type Group	Fitting Data	Nominal Length (feet)	Fitting Length (feet)	Total Length (feet)	CFactor (gpm/inc h-psi)
127	128	SCHED 40 WET STEEL	1.000	0	2E	17.00	4.00	21.00	120
117	129	SCHED 40 WET STEEL	4.000	0	T	98.00	20.00	118.00	120
129	130	SCHED 40 WET STEEL	4.000	0	E	5.50	10.00	15.50	120
130	131	SCHED 40 WET STEEL	4.000	0	E	11.50	10.00	21.50	120
131	132	SCHED 40 WET STEEL	4.000	0	4E	33.50	40.00	73.50	120
132	133	SCHED 40 WET STEEL	6.000	0	2ETGC	1.50	93.00	94.50	120
133	11	SCHED 40 WET STEEL	6.000	0	4ET2G C	40.00	124.00	164.00	120
11	10	Fire Pump 85.000 Gain		Pump					
10	9	SCHED 40 WET STEEL	6.000	0	5EG	22.00	73.00	95.00	120
9	134	Backflo Prev	3.000	Loss					
134	8	SCHED 40 WET STEEL	6.000	0	2ETG	60.00	61.00	121.00	120



Fire Sprinkler Output Summary

Hydraulically Most Demanding Sprinkler Node

HMD Sprinkler Node Number:	103
HMD Actual Residual Pressure:	12.04 psi
HMD Actual Flow:	19.50 gpm

Sprinkler Summary

Sprinkler System Type:	Dry
Specified Area Of Application:	1950.00 ft ²
Adjusted Area Of Application:	2535.00 ft ²
Minimum Desired Density:	0.150 gpm/ft ²
Application Average Density:	0.232 gpm/ft ²
Application Adjusted Density (not required by NFPA 13):	0.179 gpm/ft ²
Application Average Area Per Sprinkler:	114.71 ft ²
Adjusted Area Per Sprinkler (not required by NFPA 13):	149.12 ft ²
Sprinkler Flow:	452.54 gpm
Average Sprinkler Flow:	26.62 gpm

Flow Velocity And Imbalance Summary

Maximum Flow Velocity (In Pipe 113 - 115)	21.80 ft/sec
Maximum Velocity Pressure (In Pipe 113 - 115)	3.20 psi
Allowable Maximum Nodal Pressure Imbalance:	0.5000 psi
Actual Maximum Nodal Pressure Imbalance:	0.0056 psi
Actual Average Nodal Pressure Imbalance:	0.0015 psi
Actual Maximum Nodal Flow Imbalance:	-0.0002 gpm
Actual Average Nodal Flow Imbalance:	0.0001 gpm

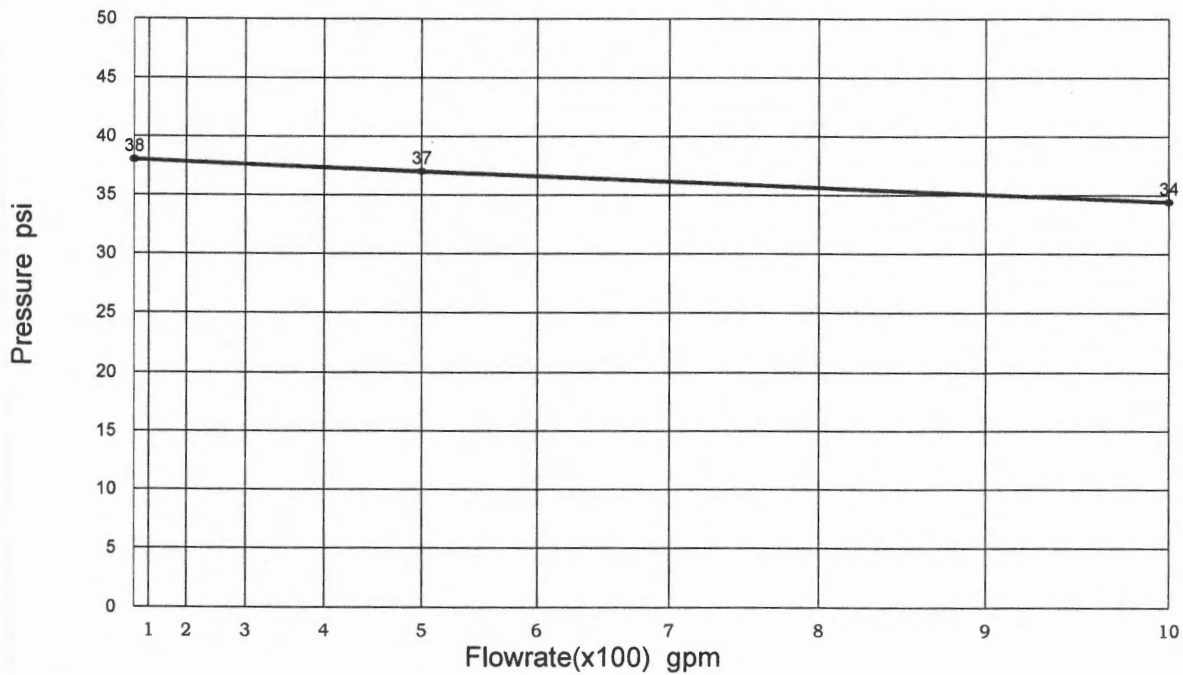
Overall Network Summary

Number Of Unique Pipe Sections:	37
Number Of Flowing Sprinklers:	17
Pipe System Water Volume:	327.06 gal
Sprinkler Flow:	452.54 gpm
Non-Sprinkler Flow:	0.00 gpm
Demand Flow Excluding Exterior Hose Flow:	452.54 gpm
Exterior Hose Flow:	0.00 gpm
Minimum Required Residual Pressure At System Inflow Node:	-29.04 psi
Demand Flow At System Inflow Node:	452.54 gpm



Fire Sprinkler Output Data

Hydraulic Supply/Demand Graph



Supply Curve Data

Static Pressure: 38 psi
Test Residual Pressure: 37 psi
Test Flow Rate: 500 gpm

Demand Curve Data

Calculated Residual Pressure: -29.04 psi
Calculated Flow Rate: 452.54 gpm
Exterior Hose Flow: 0.00 gpm
Excess Available Residual Pressure At Calculated Flow: 66.21 psi
Pressure Required For First Sprinkler Downstream From Inflow Node To Flow: -29.04 psi