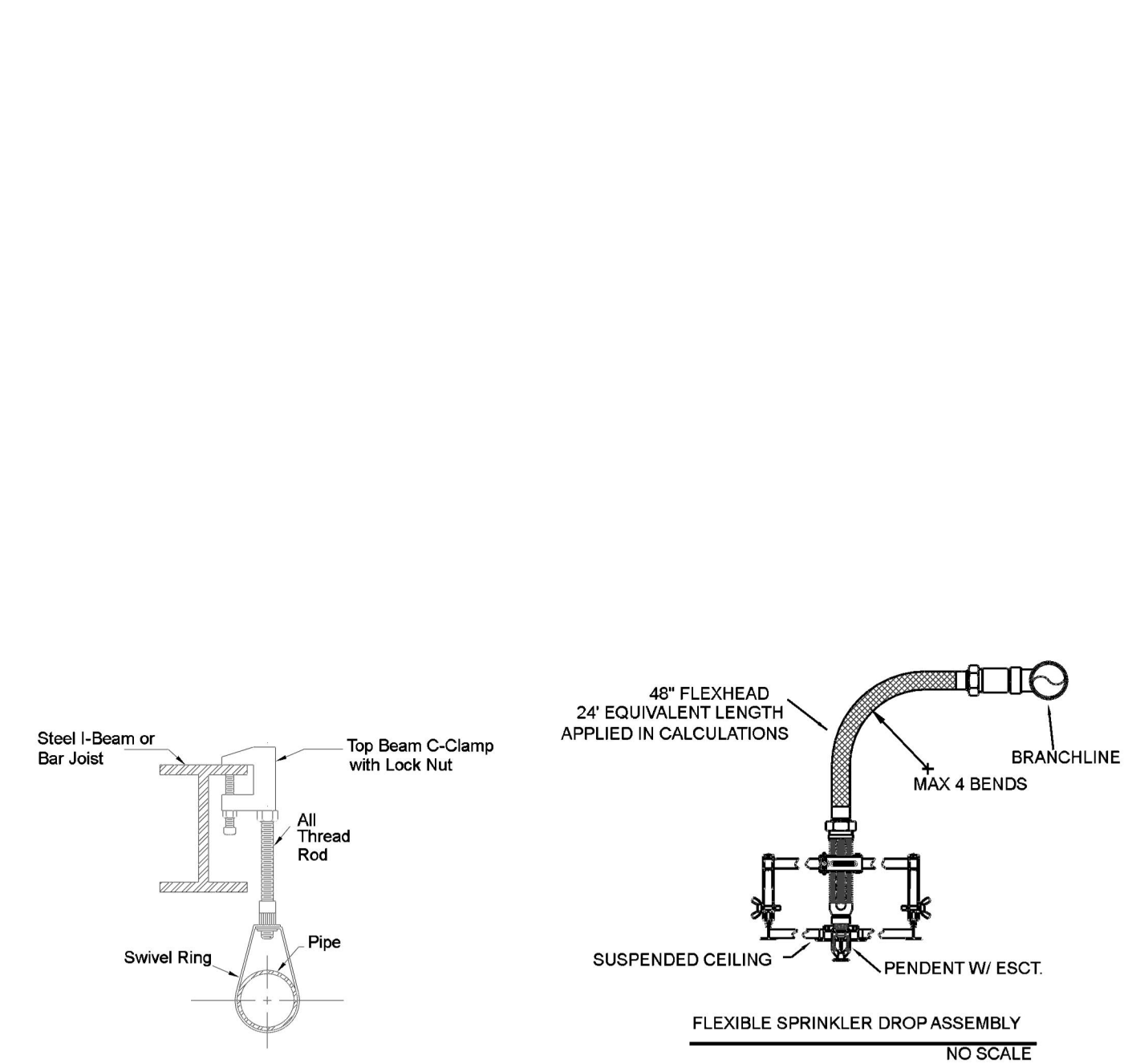
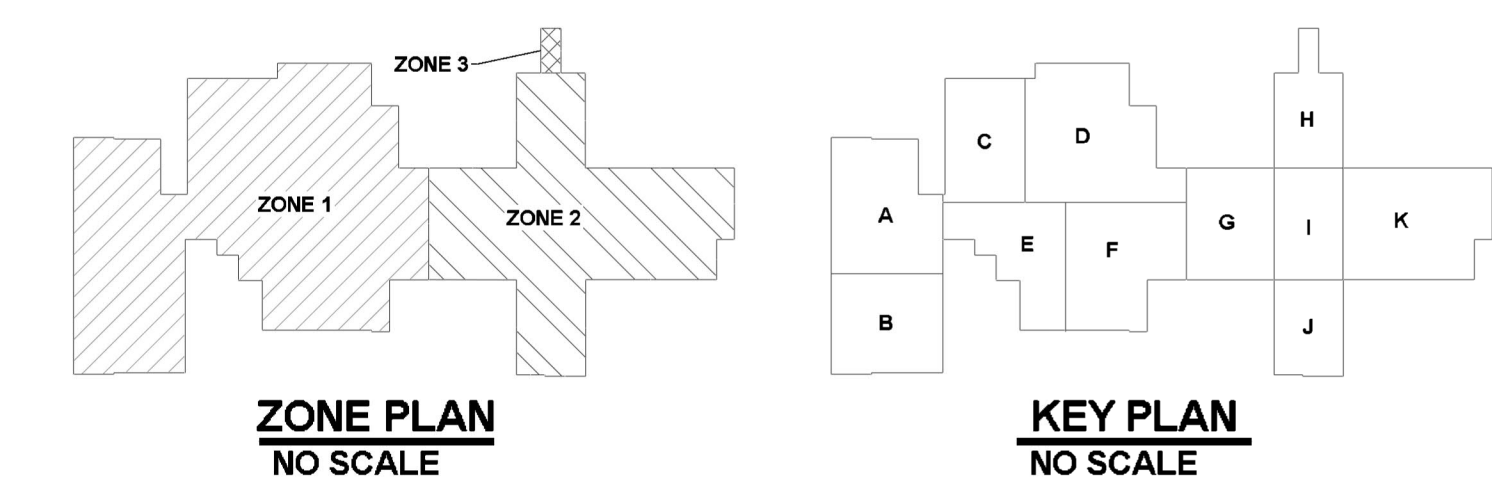


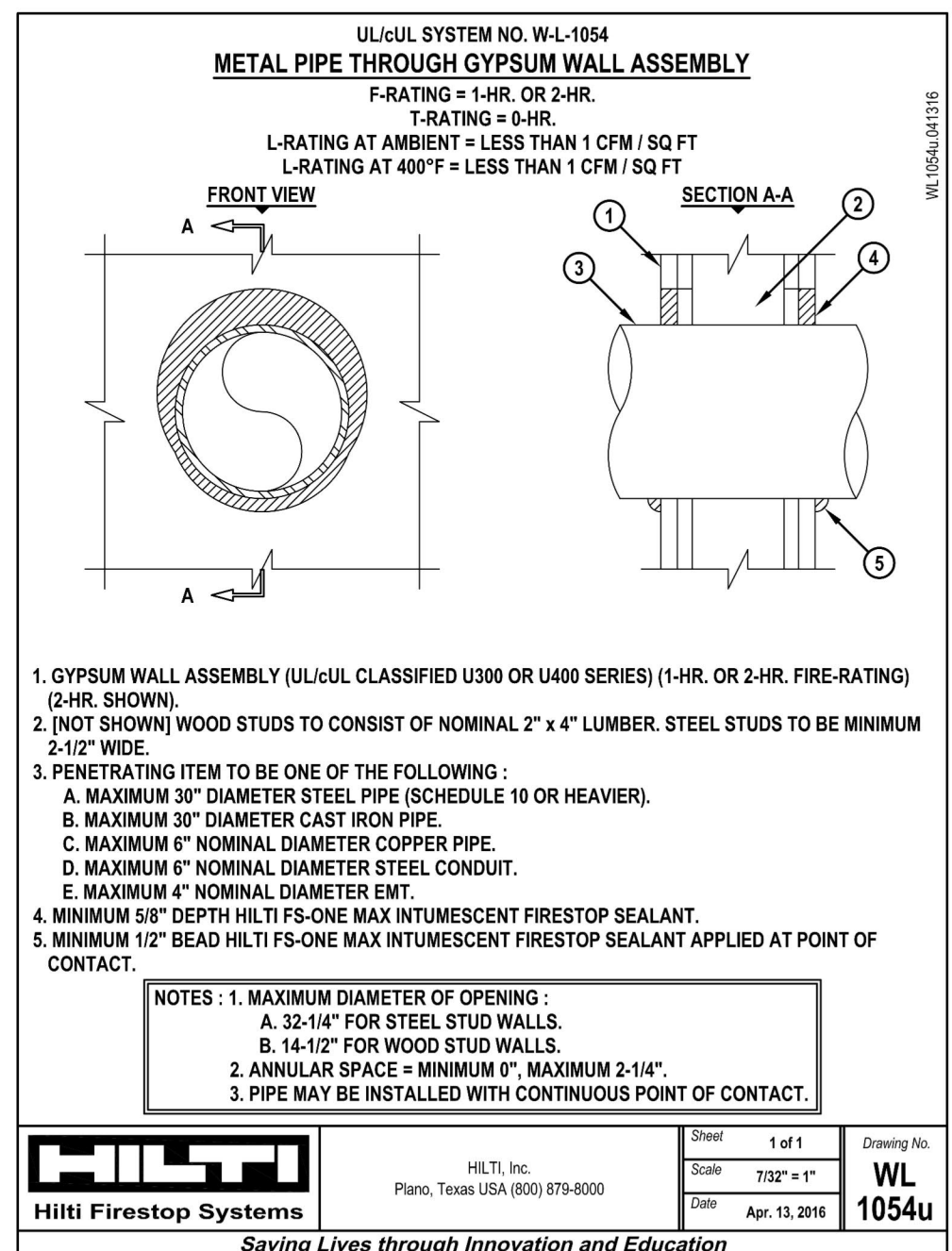
A BUILDING SECTION
SCALE: 1/8" = 1'-0"

GENERAL INFORMATION

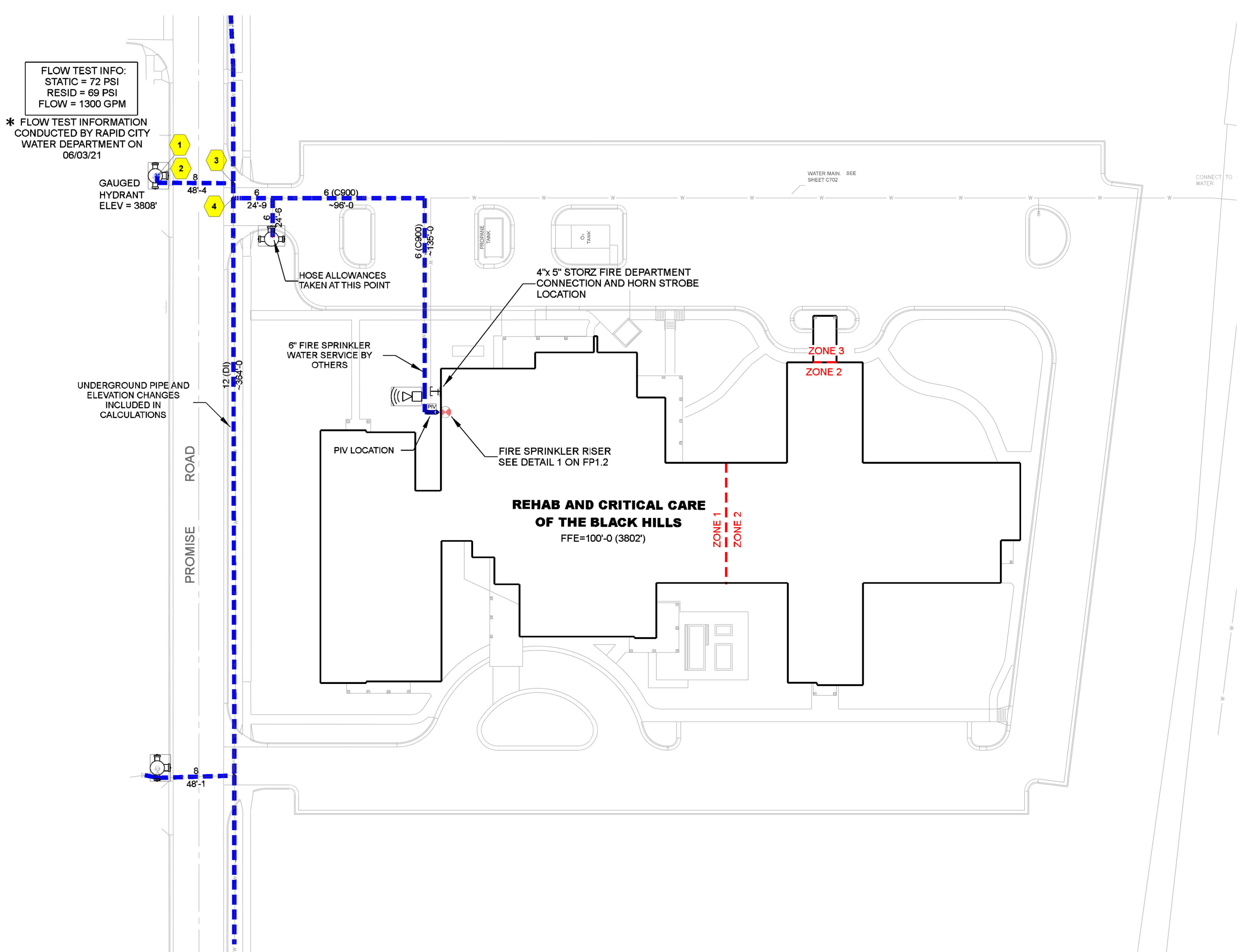
- 1) INTERNATIONAL BUILDING CODE (2018) AND INTERNATIONAL FIRE CODE (2003 WITH AMENDMENTS)
- 1.1) OCCUPANCY TYPE I-2; (INSTITUTIONAL)
- 1.2) TYPE OF CONSTRUCTION: I-4 (NON-COMBUSTIBLE CONSTRUCTION)
- 1.3) SPRINKLER AREAS (APPROXIMATE - SEE ARCHITECTURAL PLANS FOR ACTUAL)
 - ZONE 1 = 33,830 S.F.
 - ZONE 2 = 20,880 S.F.
 - ZONE 3 = 390 S.F.
 - TOTAL = 55,000 S.F.
- 1.4) INSTALLATION STANDARDS: SPRINKLER SYSTEM DESIGNED AND INSTALLED PER NFPA 13 (2022)
- 2) SPRINKLER PIPE TYPES:
 - WET:
 - 2.1) 1" PIPING AND OUTLETS TO BE SCHEDULE 40 WITH THREADED FITTINGS
 - 2.2) 1/4" THROUGH 4" MAIN & BRANCH LINES TO BE BLK SCHEDULE 10 PIPING WITH SHORT RADIUS GROOVED FITTINGS
 - 2.3) MAINS & BRANCH LINES TO BE ROLL-GROOVED BLK SCHEDULE 10
 - DRY:
 - 2.4) 1" PIPING TO BE SCHEDULE 40 WITH THREADED FITTINGS
 - 2.5) 1/4" THROUGH 4" MAIN & BRANCH LINES TO BE BLK SCHEDULE 10 PIPING WITH SHORT RADIUS GROOVED FITTINGS
 - 2.6) MAINS & BRANCH LINES TO BE ROLL-GROOVED BLK SCHEDULE 10
- 3) DESIGN CRITERIA:
 - 3.1) LIGHT HAZARD AREAS DESIGNED TO DELIVER 0.10 GPM/S.F. OVER THE MOST DEMANDING 1500 S.F.
 - 3.2) ORDINARY HAZARD GROUP I AREAS DESIGNED TO DELIVER 0.15 GPM/S.F. OVER THE MOST DEMANDING 1500 S.F.
 - 3.3) ORDINARY HAZARD GROUP II AREAS DESIGNED TO DELIVER 0.20 GPM/S.F. OVER THE MOST DEMANDING 1500 S.F.
 - 3.3) REMOTE AREA REDUCTIONS HAVE BEEN TAKEN WHERE APPLICABLE PER NFPA 13 SEC. 19.2.3.2.3.3
- 4) NOTES:
 - 4.1) ALL MATERIAL TO BE NEW AND MEET U.L. STANDARDS
 - 4.2) HANGERS TO BE INSTALLED IN ACCORDANCE WITH NFPA 13 - SEE PLAN FOR HANGING REQUIREMENTS
 - DRY SYSTEM PIPE SLOPE INSTALLATION:
 - SPRINKLER MAINS TO BE 1/4" PER 10'-0"
 - SPRINKLER BRANCH LINES TO BE 1/2" PER 10'-0"
 - DRY SYSTEM CAPACITY: 75 GALLONS
- 5) SYMBOLS USED ON DRAWINGS:
 - PIPE ELEVATION A.F.F.
 - ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD UNLESS NOTED)
 - HYDRAULIC CALCULATION JUNCTION POINT
 - CEILING HEIGHT
 - 1 HR RATED WALL (PENETRATIONS TO BE PER INSTALLATION DETAILS)
- 6) SCOPE OF WORK:
 - 6.1) INSTALL A NEW FIRE SPRINKLER SYSTEM TO COVER ALL AREAS OF BUILDING PER NFPA 13 CONSISTING OF 2 WET ZONES AND 1 DRY ZONE. ZONE 1 WILL PROTECT AREAS A,B,C,D,E & F; ZONE 2 WILL PROTECT AREAS G,H,I,J & K (SEE KEY PLAN); ZONE 3 WILL BE A DRY SYSTEM PROTECTING THE AMBULANCE CANOPY.
 - 6.2) ALL AREAS OF THE BUILDING TO BE INSTALLED AND COVERED IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PER NFPA 13



HANGER DETAIL
NO SCALE



INSTALLATION DETAILS
NO SCALE



SITE PLAN
SCALE: 1" = 50'-0"

REVISIONS

NO.	DATE	DESCRIPTION

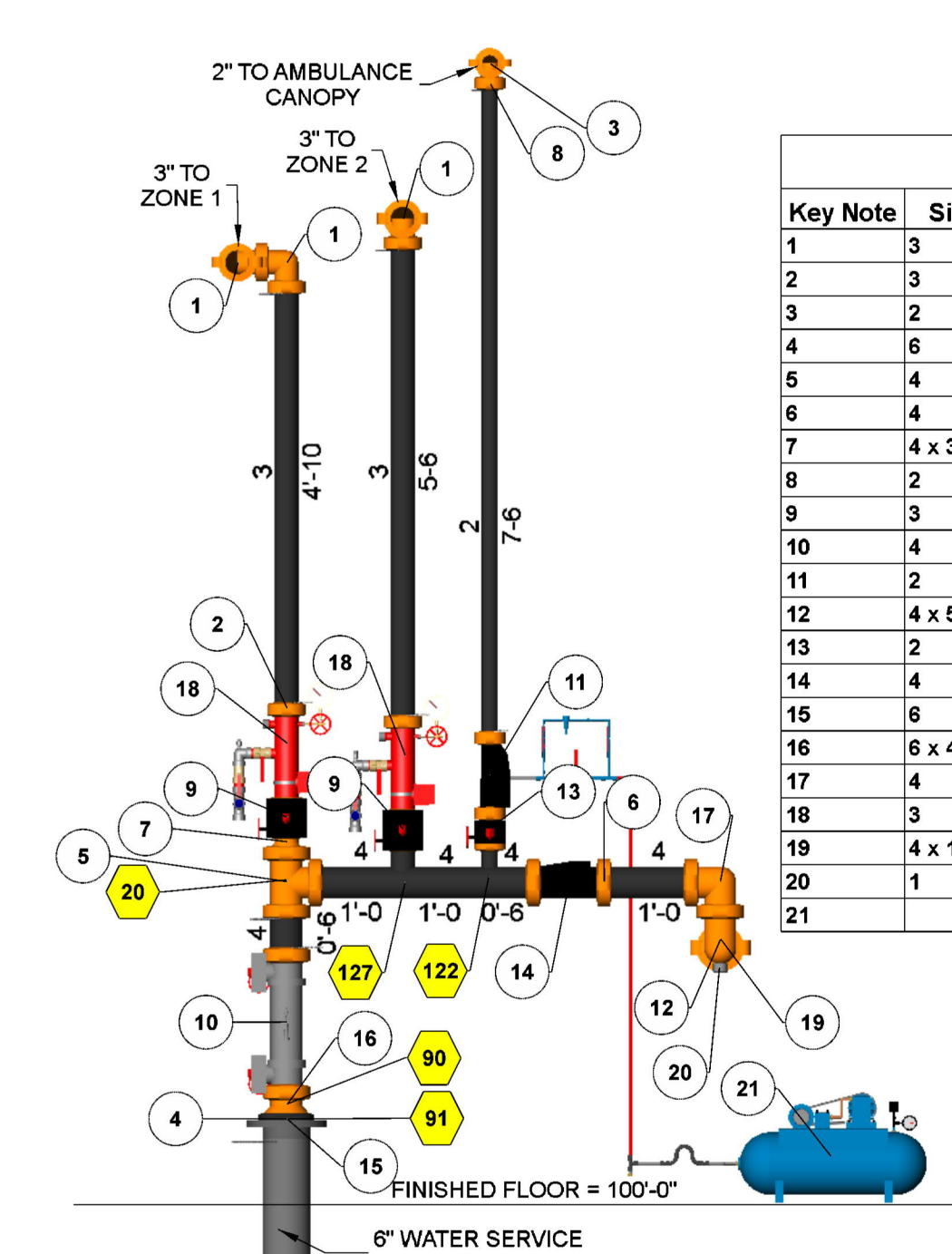
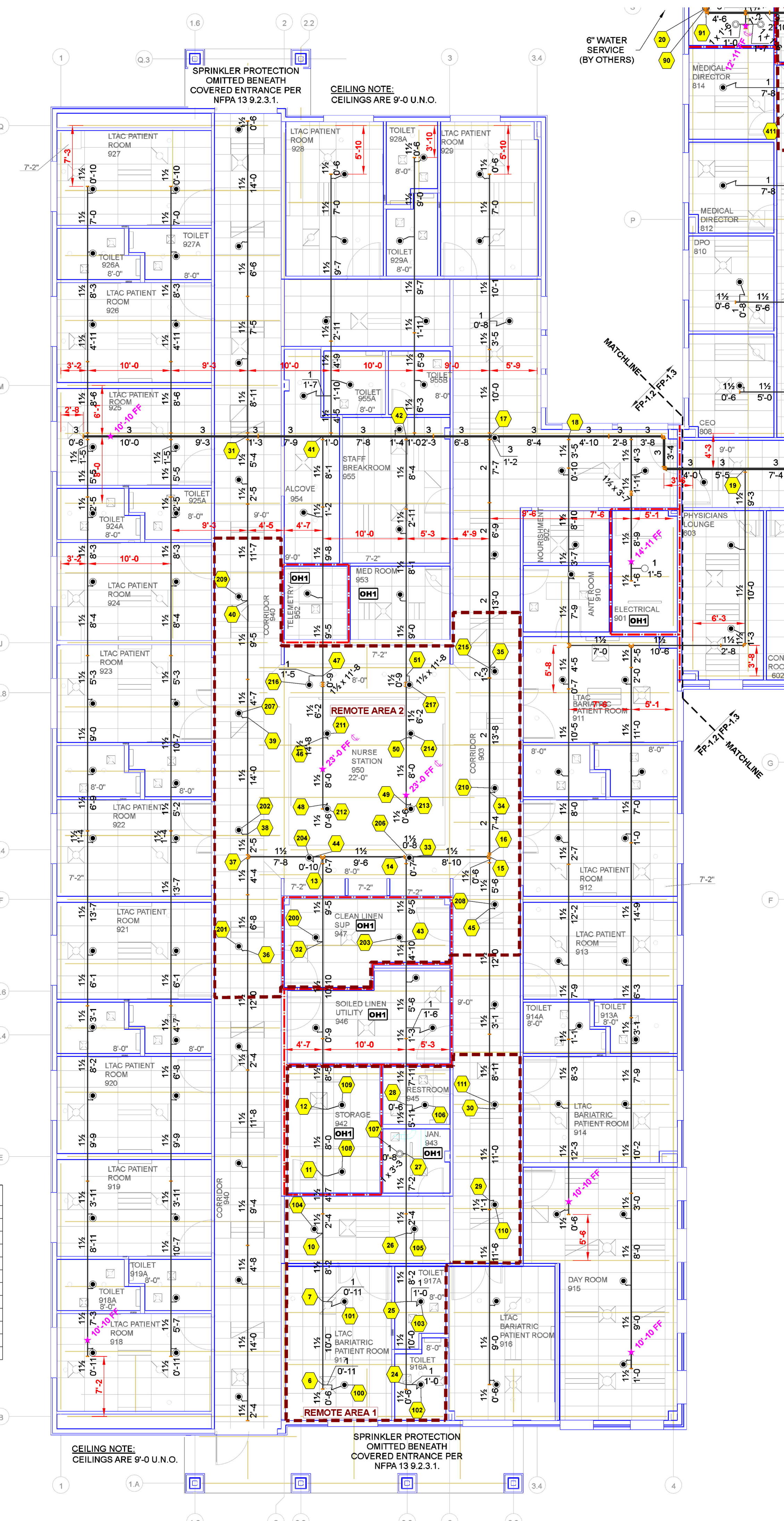
PROJECT: REHAB AND CRITICAL CARE HOSPITAL OF THE BLACK HILLS
6325 MOUNT RUSHMORE ROAD | RAPID CITY SD 57701

DRAWING TITLE: FIRE PROTECTION PLAN DETAILS

Project No.	FP4722005
Drawn By	JG
Scale	1/8" = 1'
Date	02/23/22
DWG Type	SUBMITTAL DWG
Sheet #	FP-1.1

Hydraulic Information	
Remote Area 2	
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft ²)	0.10 for 1500ft ² (Actual 1585ft ²)
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	17
K-FACTOR	5.6
TOTAL WATER REQUIRED	421.60
TOTAL PRESSURE REQUIRED	54.197
BASE OF RISER (gpm)	321.60
BASE OF RISER (psi)	56.150
SAFETY MARGIN (psi)	+17.430 (24.3%)

Hydraulic Information	
Remote Area 1	
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft ²)	0.10 for 1500ft ² (Actual 1031ft ²)
QUICK RESPONSE REDUCTION	15'-0" Ceiling (32.5%) 1012ft ²
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	12
K-FACTOR	5.6
TOTAL WATER REQUIRED	340.45
TOTAL PRESSURE REQUIRED	60.008
BASE OF RISER (gpm)	240.45
BASE OF RISER (psi)	62.417
SAFETY MARGIN (psi)	+11.740 (16.4%)

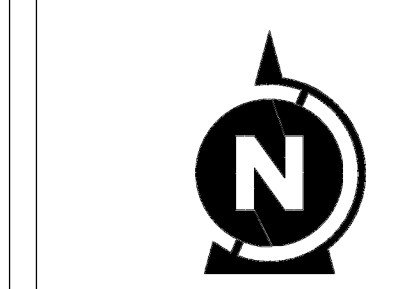


1 FIRE RISER DETAIL
SCALE: 1/2" = 1'-0"

Fire Riser Legend			
Key Note	Size	Description	Quantity
1	3	Anvil SE-1 90° Elbow	3
2	3	Victaulic Installation Ready Coupling 009N Org	13
3	2	Anvil SE-1 90° Elbow	1
4	6	Victaulic Vic-Flange Adapter #741 (LP), Blk	1
5	4	Anvil ST-1 Tee	1
6	4	Victaulic Installation Ready Coupling 009N Org	8
7	4 x 3	Victaulic Concentric Reducer #50 Org	1
8	2	Victaulic Installation Ready Coupling 009N Org	5
9	3	Butterfly, Victaulic FireLock 705 Grv	2
10	4	Deringer 20, G-G Backflow (Butterfly)	1
11	2	Dry Valve, Viking G-2000 Grv	1
12	4 x 6	FDC, Flush, Storz	1
13	2	Butterfly, Victaulic FireLock 705 Grv	1
14	4	Check, Anvil M-2	1
15	6	Uni-Flange	1
16	6 x 4	Victaulic Concentric Reducer #50 Org	1
17	4	Anvil SE-1 90° Elbow	2
18	3	Grv Riser Manifold	2
19	4 x 1 x 4	Victaulic 90° Drain Elbow #10-DR Org	1
20	1	Automatic Ball Drip	1
21		Air Compressor	1

Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
○	Viking	VK300	Microfast	20	5.6	Sprig	1/2"	Quick	Brass	200°F	N/A
○	Viking	VK300	Microfast	11	5.6	Upright	1/2"	Quick	Brass	200°F	N/A
○	Viking	VK176	Dry	6	5.6	Pendent	1"	Quick	Chrome	200°F	Standard
○	Viking	VK302	Microfast	522	5.6	Pendent	1/2"	Quick	White Polyester	200°F	Semi-Recessed
				Total = 559							

MAXIMUM DISTANCE BETWEEN HANGERS (FT.-IN.)					
	1"	1 1/2"	2"	3"	4"
STEEL PIPE EXCEPT THREADED LIGHTWALL	12-0	15-0	15-0	15-0	15-0



REVISIONS

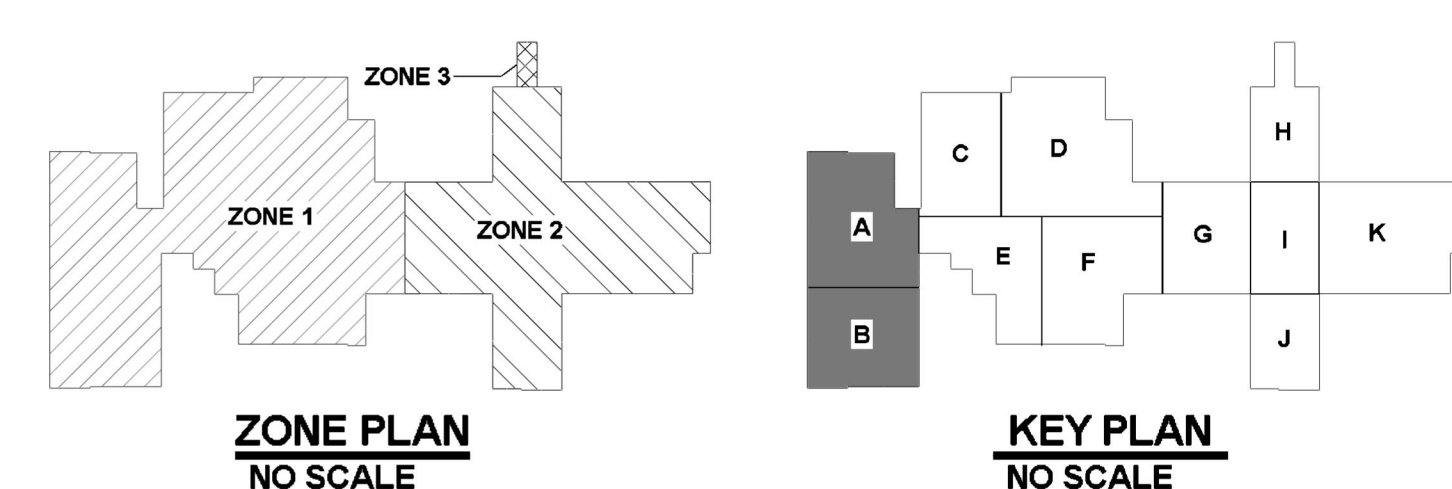
No.	Description

PROJECT: REHAB AND CRITICAL CARE HOSPITAL OF THE BLACK HILLS
6325 MOUNT RUSHMORE ROAD | RAPID CITY, SD 57701
Drawing/Title

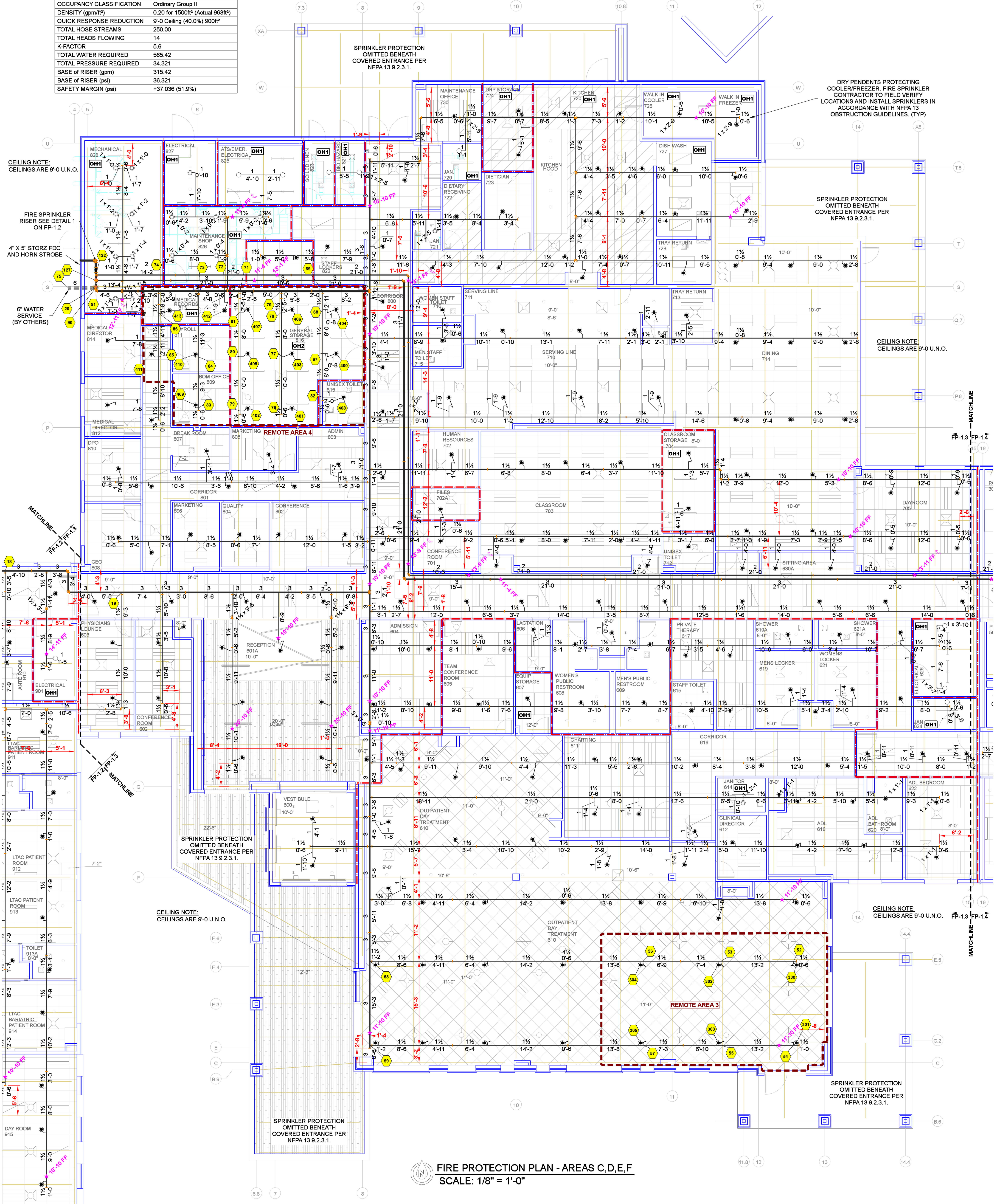
Project No: FP4722005
Drawn By: JG
Scale: 1/8" = 1'
Date: 02/23/22
DWG Type: SUBMITTAL DWG

Sheet # FP-1.2

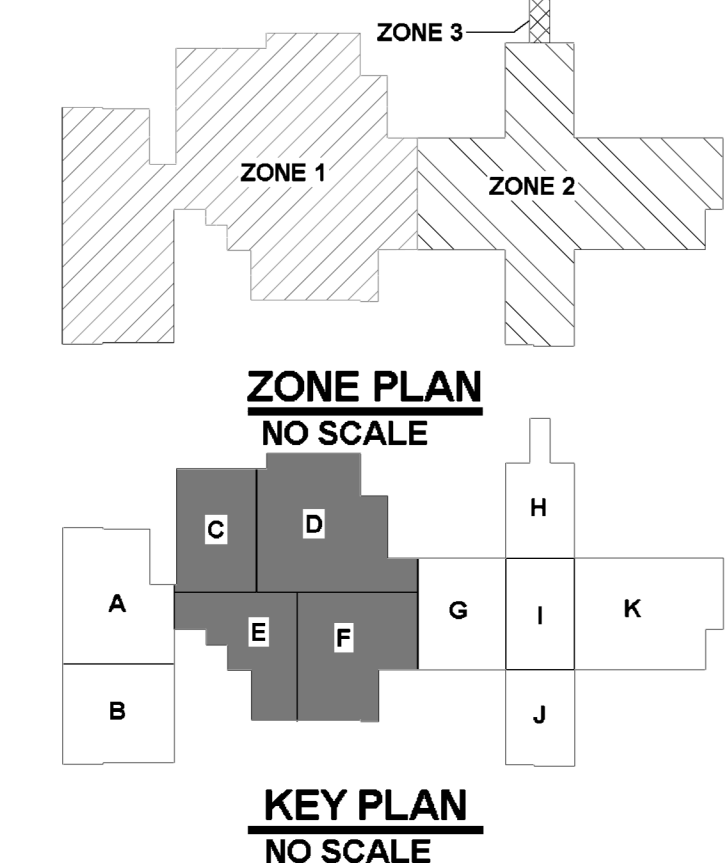
FIRE PROTECTION PLAN AREAS A & B
SCALE: 1/8" = 1'-0"



Hydraulic Information	
Remote Area 4	
OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft²)	0.20 for 1500R² (Actual 963R²)
QUICK RESPONSE REDUCTION	9'-0" Ceiling (40.0%) 900R²
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	14
K-FACTOR	5.6
TOTAL WATER REQUIRED	565.42
TOTAL PRESSURE REQUIRED	34.321
BASE OF RISER (gpm)	315.42
BASE OF RISER (psi)	36.321
SAFETY MARGIN (psi)	+37.036 (51.9%)

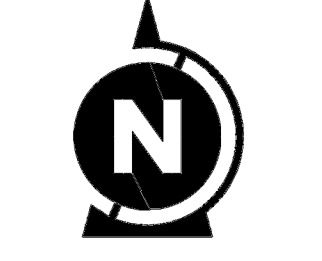


Hydraulic Information	
Remote Area 3	
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft²)	0.10 for 1500R² (Actual 983R²)
QUICK RESPONSE REDUCTION	11'-0" Ceiling (38.5%) 923R²
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	6
K-FACTOR	5.6
TOTAL WATER REQUIRED	236.46
TOTAL PRESSURE REQUIRED	38.062
BASE OF RISER (gpm)	136.46
BASE OF RISER (psi)	40.907
SAFETY MARGIN (psi)	+33.780 (47.0%)



Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
○	Viking	VK300	Microfast	20	5.6	Sprig	1/2"	Quick	Brass	200°F	N/A
○	Viking	VK300	Microfast	11	5.6	Upright	1/2"	Quick	Brass	200°F	N/A
●	Viking	VK176	Dry	6	5.6	Pendent	1"	Quick	Chrome	200°F	Standard
●	Viking	VK302	Microfast	522	5.6	Pendent	1/2"	Quick	White Polyester	200°F	Semi-Recessed
				Total = 569							

MAXIMUM DISTANCE BETWEEN HANGERS (FT.-IN.)					
	1"	1 1/2"	2"	3"	4"
STEEL PIPE EXCEPT THREADED LIGHTWALL	12-0	15-0	15-0	15-0	15-0



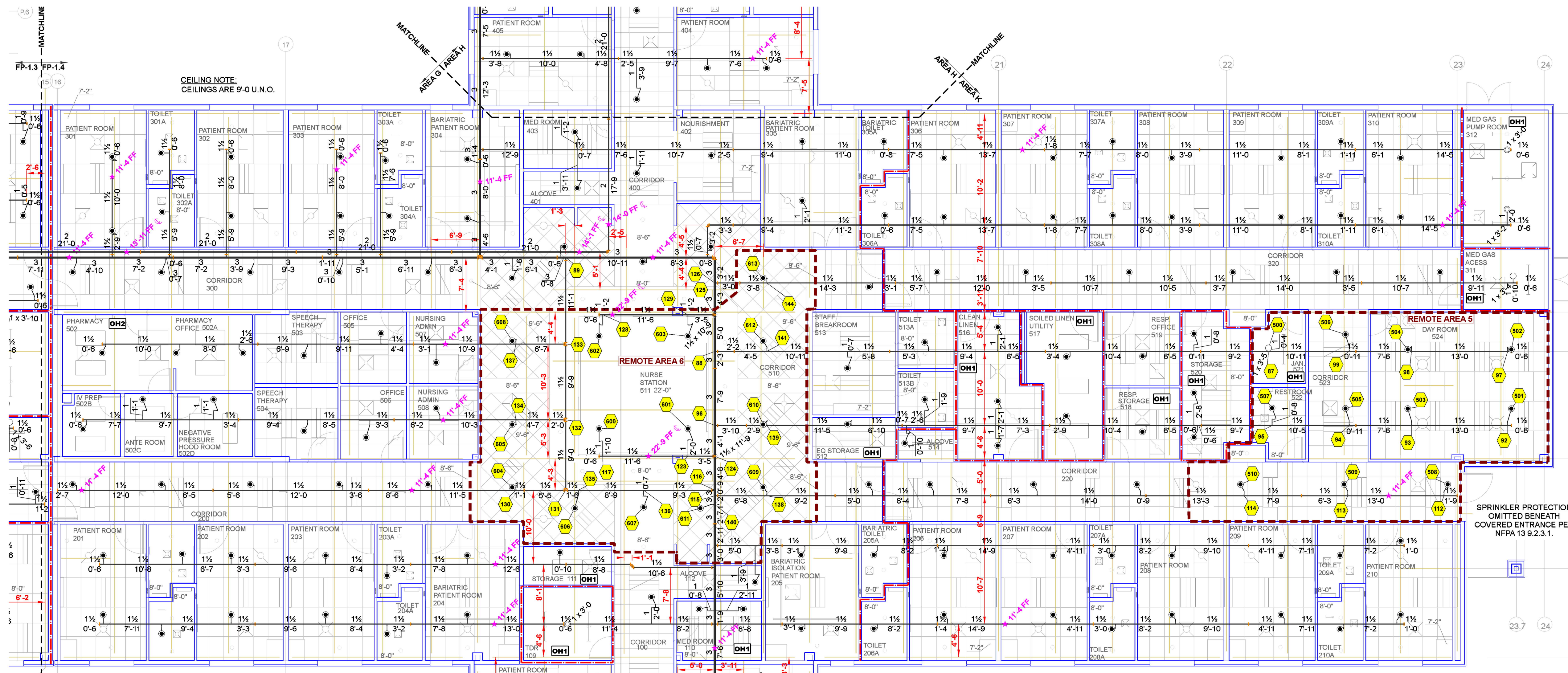
REVISIONS

PROJECT: REHAB AND CRITICAL CARE HOSPITAL OF THE BLACK HILLS
6325 MOUNT RUSHMORE ROAD | RAPID CITY SD 57701

Project No: FP4722005
Drawn By: JG
Scale: 1/8" = 1'
Date: 02/23/22
DWG Type: SUBMITTAL DWG

Sheet # FP-1.3

FIRE PROTECTION PLAN - AREAS C,D,E,F
SCALE: 1/8" = 1'-0"



SPRINKLER PROTECTION OMITTED BENEATH COVERED ENTRANCE PER NFPA 13 9.2.3.1.

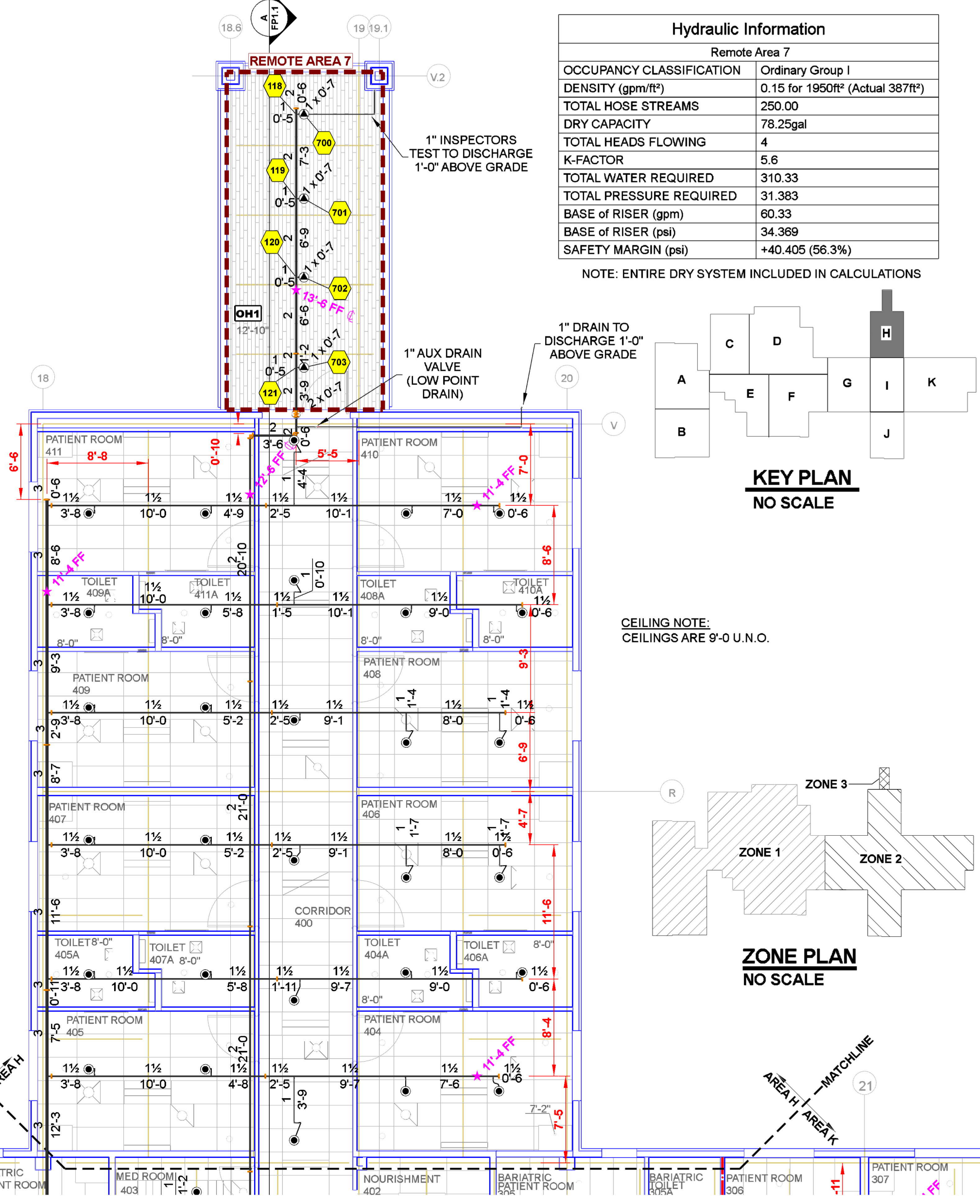
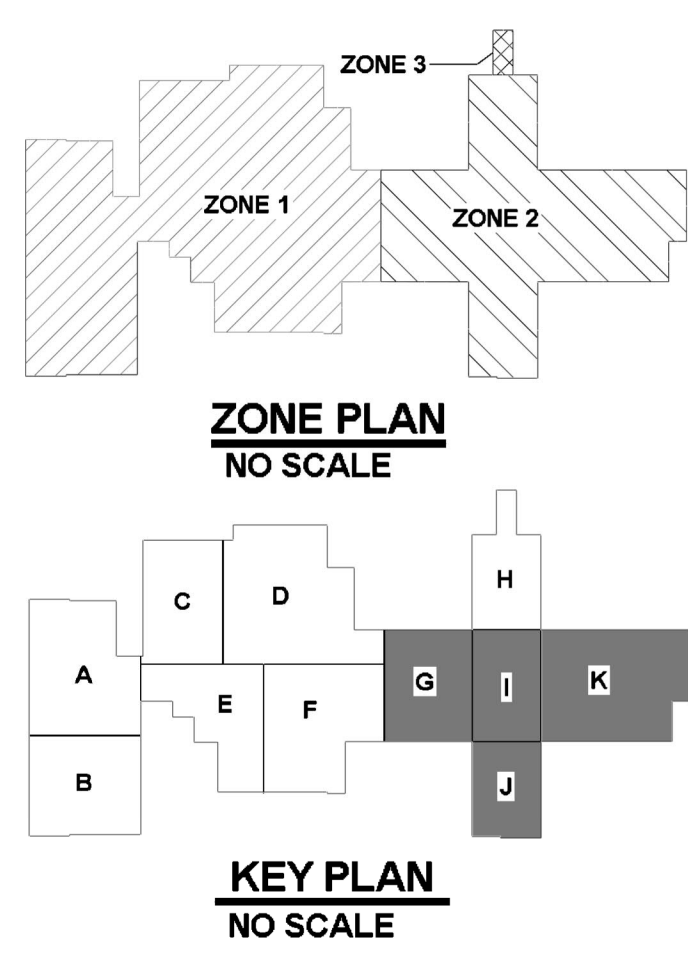
CEILING NOTE:
CEILINGS ARE 9'-0" U.O.

Hydraulic Information	
Remote Area 6	
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft ²)	0.10 for 1500ft ² (Actual 1510ft ²)
TOTAL HOSE STREAMS	100.00
DRY CAPACITY	0.00gal
TOTAL HEADS FLOWING	14
K-FACTOR	5.6
TOTAL WATER REQUIRED	352.92
TOTAL PRESSURE REQUIRED	43.901
BASE OF RISER (gpm)	252.92
BASE OF RISER (psi)	46.248
SAFETY MARGIN (psi)	+27.830 (38.8%)

Hydraulic Information	
Remote Area 5	
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft ²)	0.10 for 1500ft ² (Actual 1168ft ²)
QUICK RESPONSE REDUCTION	15'-0" Ceiling (32.5%) 101.2ft ²
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	11
K-FACTOR	5.6
TOTAL WATER REQUIRED	317.29
TOTAL PRESSURE REQUIRED	50.984
BASE OF RISER (gpm)	217.29
BASE OF RISER (psi)	53.499
SAFETY MARGIN (psi)	+20.796 (29.0%)

Hydraulic Information	
Remote Area 7	
OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft ²)	0.15 for 1950ft ² (Actual 387ft ²)
TOTAL HOSE STREAMS	250.00
DRY CAPACITY	78.25gal
TOTAL HEADS FLOWING	4
K-FACTOR	5.6
TOTAL WATER REQUIRED	310.33
TOTAL PRESSURE REQUIRED	31.383
BASE OF RISER (gpm)	60.33
BASE OF RISER (psi)	34.969
SAFETY MARGIN (psi)	+40.405 (56.3%)

NOTE: ENTIRE DRY SYSTEM INCLUDED IN CALCULATIONS



FIRE PROTECTION PLAN - AREAS G, I, J, K
SCALE: 1/8" = 1'-0"

Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
○	Viking	VK300	Microfast	20	5.6	Sprig	1/2"	Quick	Brass	200°F	N/A
○	Viking	VK300	Microfast	11	5.6	Upright	1/2"	Quick	Brass	200°F	N/A
○	Viking	VK175	Dry	8	5.6	Pendent	1"	Quick	Chrome	200°F	Standard
○	Viking	VK302	Microfast	522	5.6	Pendent	1/2"	Quick	White Polyester	200°F	Semi-Recessed
				Total = 559							

MAXIMUM DISTANCE BETWEEN HANGERS (FT.-IN.)					
	1"	1 1/2"	2"	3"	4"
STEEL PIPE EXCEPT THREADED LIGHTWALL	12-0	15-0	15-0	15-0	15-0

FIRE PROTECTION PLAN - AREA H
SCALE: 1/8" = 1'-0"

REVISIONS

NO.	DESCRIPTION

REHAB AND CRITICAL CARE HOSPITAL OF THE BLACK HILLS
6325 MOUNT RUSHMORE ROAD | RAPID CITY, SD 57701

FIRE PROTECTION PLAN AREAS G, H, I, J & K

Project No: **FP4722005**
 Drawn By: **JG**
 Scale: **1/8" = 1'**
 Date: **02/23/22**
 DWG Type: **SUBMITTAL DWG**

Sheet # **FP-1.4**