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February 3, 2020

HAZMAT

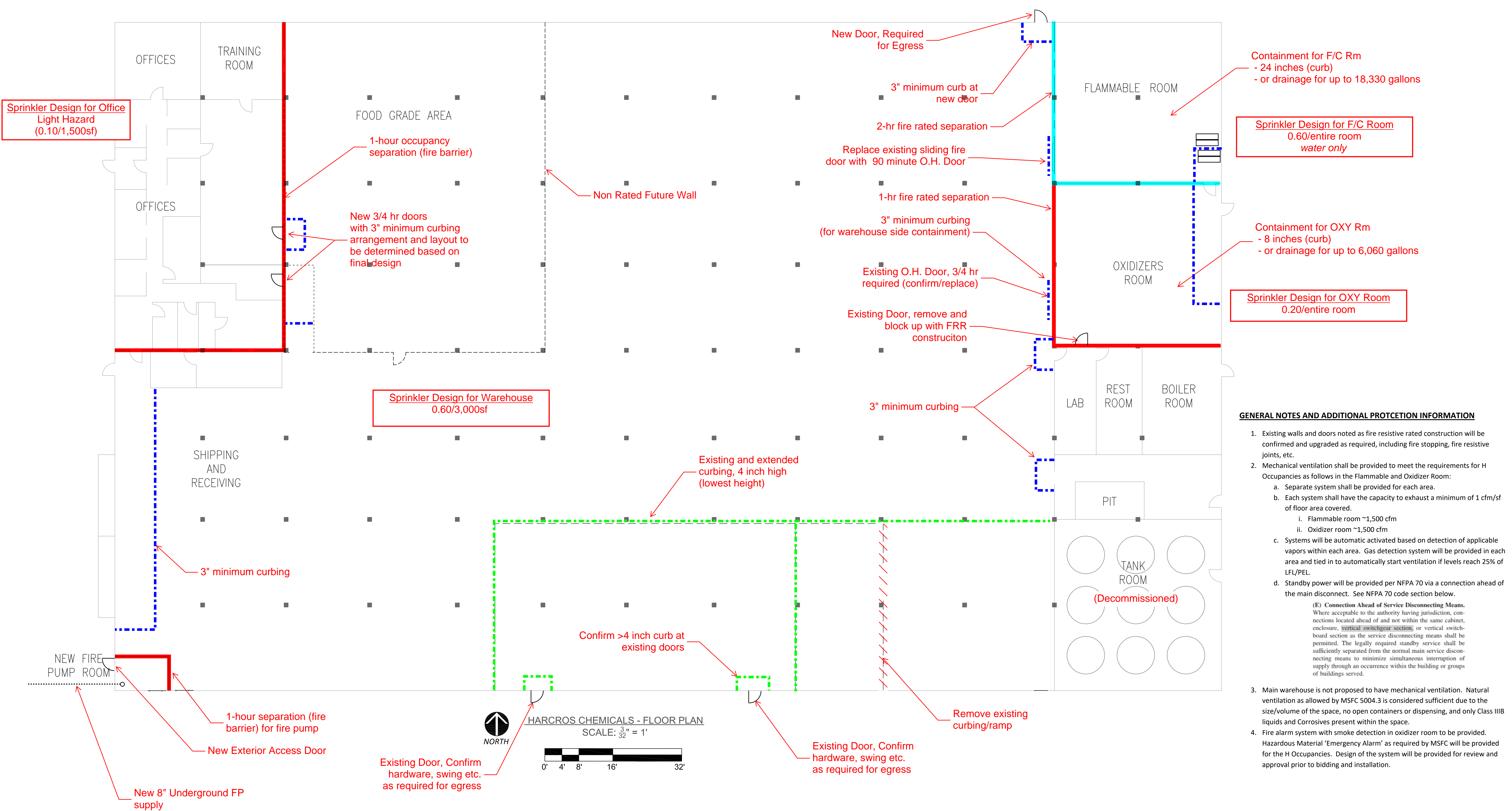
CITY OF ST. PAUL, MINNESOTA

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HAZARDOUS MATERIALS STORAGE ROOMS

1 OF 1

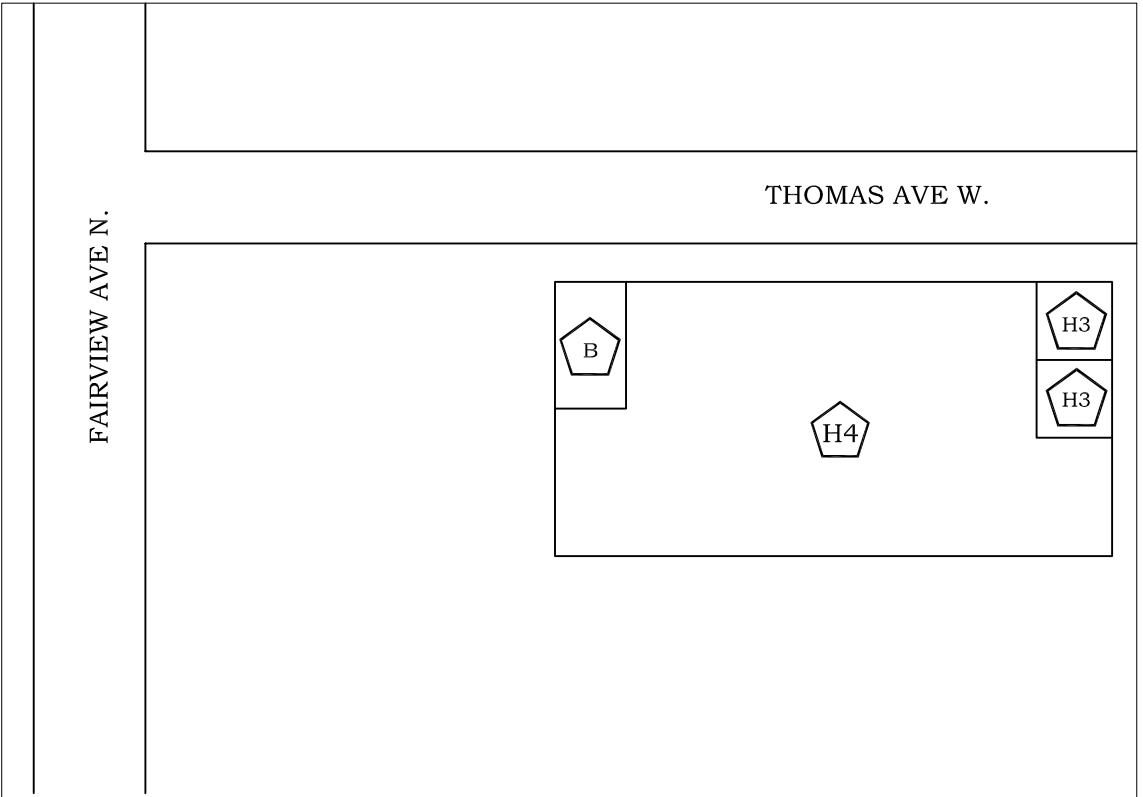
FP-01



SECONDARY CONTAINMENT CALCULATIONS	
WAREHOUSE (H-4 OCCUPANCY)	
A. Required Containment Volume	36,330 gal
1. Largest Single Container:	330.0 gal
2. Fire Water (Sprinkler Flow)	36,000.0 gal
<u>Ceiling Sprinklers</u>	
Design Density:	0.60 gpm/ft ²
Remote/Room Area:	3,000 ft ²
Total Ceiling System Flow	1,800 gpm
<u>Flow Time:</u>	20 minutes
B. Provided Containment Volume	44,886 gal
<u>Containment Method:</u>	<i>Raised Curb</i>
Containment Area	24,000 ft ²
Curb Height	3 inches
Conversion Factor	7.481 gal/ft ³
C. Safety Factor (Margin)	24%

SECONDARY CONTAINMENT CALCULATIONS	
FLAMMABLE ROOM (H-3 OCCUPANCY)	
A. Required Containment Volume	18,330 gal
1. Largest Single Container:	330.0 gal
2. Fire Water (Sprinkler Flow)	18,000.0 gal
<u>Ceiling Sprinklers</u>	
Design Density:	0.60 gpm/ft ²
Remote/Room Area:	1,500 ft ²
Total Ceiling System Flow	900 gpm
<u>Flow Time:</u>	20 minutes
B. Provided Containment Volume	22,443 gal
<u>Containment Method:</u>	
Containment Area	Raised Curb
Curb Height	1,500 ft ²
Conversion Factor	24 inches
	7.481 gal/ft ³
C. Safety Factor (Margin)	22%

SECONDARY CONTAINMENT CALCULATIONS	
OXIDIZER ROOM (H-3 OCCUPANCY)	
A. Required Containment Volume	6,060 gal
1. Largest Single Container:	60.0 gal
2. Fire Water (Sprinkler Flow)	6,000.0 gal
<u>Ceiling Sprinklers</u>	
Design Density:	0.20 gpm/ft ²
Remote/Room Area:	1,500 ft ²
Total Ceiling System Flow	300 gpm
<u>Flow Time:</u>	20 minutes
B. Provided Containment Volume	7,481 gal
<u>Containment Method:</u>	
Containment Area	Raised Curb
Curb Height	1,500 ft ²
Conversion Factor	8 inches
	7,481 gal/ft ³
C. Safety Factor (Margin)	23%



KEY MAP/OCCUPANCY CLASSIFICATION
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