

FIRE PROTECTION PLANS

M F. E. Moran, Inc. Fire Protection
3001 Research Rd
Champaign, IL 61822
(217) 356-0700
MISSOURI COA: E-2022012018

SCOPE OF WORK

SCOPE OF WORK:
** FURNISH & INSTALL 7 NEW WET PIPE ESFR SPRINKLER SYSTEMS FOR THE NEW BUILDING.
** FURNISH & INSTALL A NEW 1600 GPM FIRE PUMP WITH ACCESSORIES
** POINT OF CONNECTION (START OF CONTRACT) IS AT AN 10" FLANGE, 12" ABOVE THE FINISHED FLOOR IN THE FIRE PUMP ROOM.
** TRAPEZIE HANGERS FOR ALL 8" AND LARGER PIPES HANGING PARALLEL WITH THE BAR JOIST.
** INSTALL CLASS I MAN-DOOR ADJACENT, HOSE CONNECTIONS

NOT INCLUDED:
** WIRING OF ELECTRICAL DEVICES
** ELECTRICAL WIRING BETWEEN FIRE PUMP AND CONTROLLER
** FIRE EXTINGUISHERS
** STANDPIPES
** FIRE PUMP CONTROLLER AUTO TRANSFER SWITCH
** ALL UNDERGROUND PIPING AND TESTING
** BACKFLOW PREVENTER (IN PIT BY OTHERS)
** COLUMN SPRINKLERS
** SEISMIC BRACING
** PAINTED PIPING
** CONCRETE PADS
** COMPONENT IDENTIFICATION BEYOND NFPA 13 REQUIREMENTS
** ACCESS PANELS
** CUTTING AND PATCHING
** PIPE SLEEVES & BOLLARDS

CODE INFORMATION

CODE INFORMATION:
**NFPA 13, 2016 EDITION: INSTALLATION OF SPRINKLER SYSTEMS
**NFPA 20, 2016 EDITION: INSTALLATION OF CENTRIFUGAL FIRE PUMPS
**INTERNATIONAL BUILDING & FIRE CODE, 2018 EDITION

BUILDING INFO:
IBC OCCUPANCY CLASSIFICATION: S-1
IBC CONSTRUCTION TYPE: II-B
IBC SEISMIC DESIGN CATEGORY: B
HIGHEST FLOOR ELEVATION FROM FIRE DEPARTMENT VEHICLE ACCESS: GRADE
NUMBER OF STORIES: 1
BUILDING AREA: 253,278 ft²

GENERAL REQUIREMENTS

** SUPPLY A SPARE SPRINKLER CABINET WITH WRENCH FOR EACH SPRINKLER TYPE AS REQUIRED BY NFPA 13.
** IDENTIFY ALL HYDRAULICALLY CALCULATED SYSTEMS WITH A PERMANENTLY MARKED AND WEATHERPROOF SIGN.
** ALL NEW PIPING OR PIPING MODIFICATIONS WHICH AFFECT MORE THAN 20 SPRINKLERS SHALL BE HYDROSTATICALLY TESTED AT 200 PSI OR 50 PSI OVER THE SYSTEM WORKING PRESSURE. THE SYSTEM SHALL MAINTAIN THIS PRESSURE WITHOUT LOSS FOR 2 HOURS.
*** ALL NEW PIPING OR PIPING MODIFICATIONS WHICH AFFECT 20 SPRINKLERS OR LESS, SHALL BE TESTED AT THE SYSTEM WORKING PRESSURE.
** ALL PIPING MODIFICATIONS WHICH CANNOT BE ISOLATED FROM THE EXISTING SYSTEM, SHALL BE TESTED AT THE SYSTEM WORKING PRESSURE.
** THE LOCAL FIRE/BUILDING INSPECTOR IS TO BE NOTIFIED 48 HOURS IN ADVANCE OF ALL TESTING.
UNDERGROUND TESTING AND FLUSHING:
** ALL UNDERGROUND PIPE SHALL BE TESTED AND FLUSHED BY THE INSTALLING CONTRACTOR AS REQUIRED BY NFPA 24 BEFORE ANY OVERHEAD SPRINKLER PIPING IS CONNECTED.

VALVES

** ALL VALVES CONTROLLING WATER FLOW TO SPRINKLERS SHALL BE INDICATING & SUPERVISED.
** ALL VALVES SHALL BE ACCESSIBLE AT ALL TIMES AND PERMANENTLY IDENTIFIED.
** THE IDENTIFICATION OF CONTROL VALVES SHALL INCLUDE A DESCRIPTION OR DIAGRAM OF WHAT THEY CONTROL.
** ALL TRAPPED PORTIONS OF SPRINKLER PIPING SHALL BE PROVIDED WITH A LOW POINT DRAIN AS REQUIRED BY NFPA 13.

PIPE HANGERS

** 1"-8" HANGER RINGS ARE TO BE ADJUSTABLE SWIVEL RINGS, ZINC PLATED, MANUFACTURED TO ANSI/MSS SP-69 STANDARDS.
** HANGER ROD SIZES AND LOCATIONS ARE TO BE AS REQUIRED BY NFPA 13.

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WET SYSTEM PIPE & FITTINGS

WET-PIPE SPRINKLER SYSTEM BLACK PIPE:

**1¼, 4" & SMALLER PIPING SHALL BE BLACK STEEL SCH. 7 PIPE, MANUFACTURED TO ASTM A795 STANDARDS.

** 6" & GREATER PIPING SHALL BE BLACK STEEL SCH. 10 PIPE, MANUFACTURED TO ASTM A136 STANDARDS.

**1" LINE PIPING SHALL BE BLACK STEEL SCH. 40

WET-PIPE SPRINKLER SYSTEM BLACK OUTLETS & FITTINGS:

** 1" BRANCH LINE FITTINGS SHALL BE BLACK DUCTILE IRON THREADED, CLASS 125 STANDARD, MANUFACTURED PER ANSI/ASME B16.4, U.L. LISTED FOR FIRE PROTECTION USE UP TO 175 PSI WORKING PRESSURE.
** 1½"-3" BRANCH LINE FITTINGS SHALL BE BLACK DUCTILE IRON GROOVED, CLASS 150 STANDARD, MANUFACTURED PER ANSI/ASME B16.3, U.L. LISTED FOR FIRE PROTECTION USE UP TO 175 PSI WORKING PRESSURE.

** 1½"- 3" BRANCH LINE PIPE OUTLETS TO BE WELDED MANUFACTURED TO ASTM A53 & ANSI B1.20.1 STANDARDS.

** 4"-8" MAIN PIPE BRANCH OUTLETS TO BE WELDED MANUFACTURED TO ASTM A53 & ANSI B1.20.1 STANDARDS.
** 4"-8" MAIN PIPE BRANCH OUTLETS TO BE DUCTILE IRON MECHANICAL MANUFACTURED

DESIGN CRITERIA - ESFR (16.8 k)

SPRINKLER SYSTEM DESIGN CRITERIA (ESFR)-PALLETIZED/SOLID-PILE/RACK STORAGE:

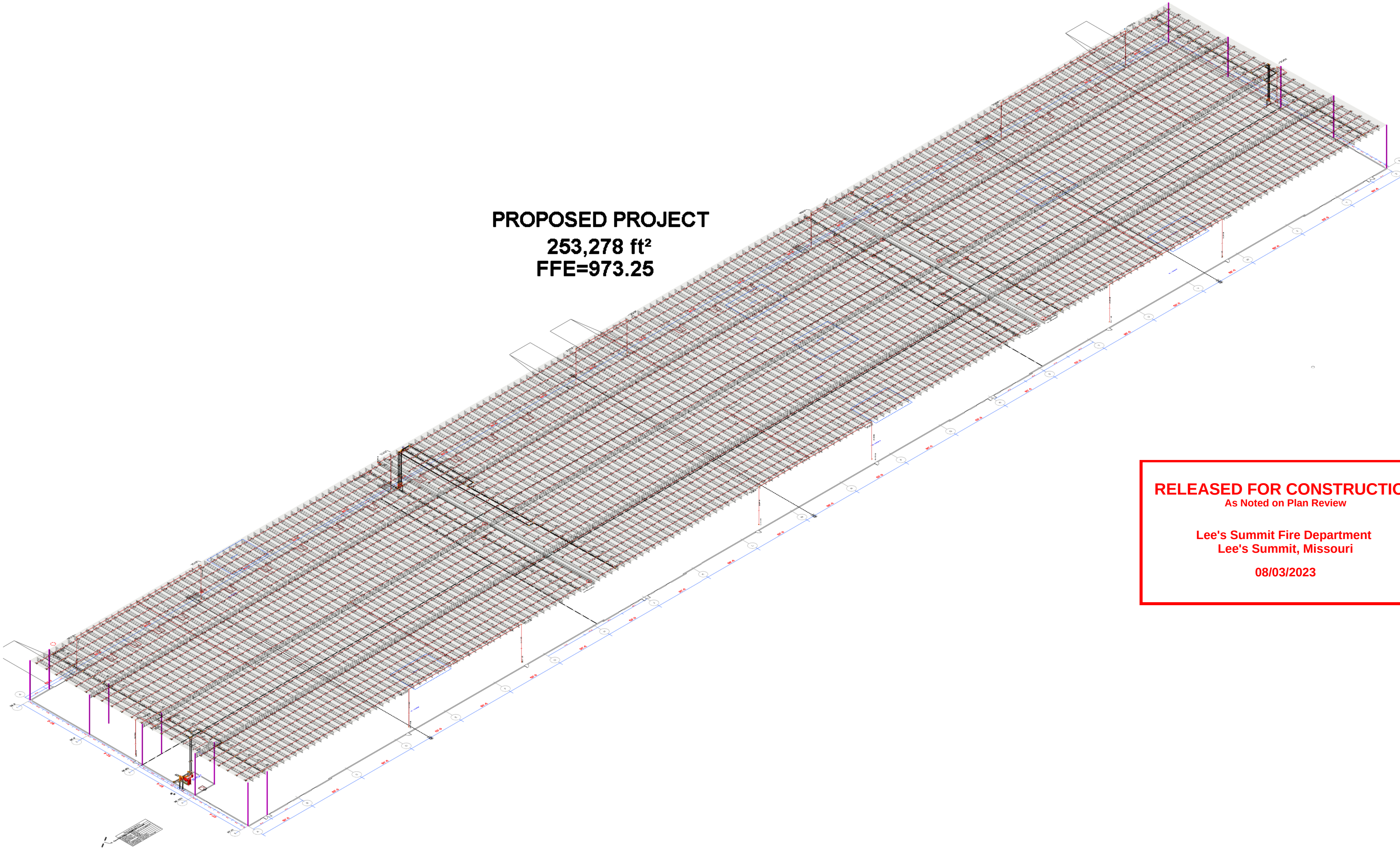
FROM NFPA 13, 2016 EDITION TABLE 16.3.3.1 & TABLE 17.3.3.1
COMMODITY CLASSIFICATION: CLASS I, II, III OR IV, ENCAPSULATED OR UNENCAPSULATED, NO OPEN TOP CONTAINERS
STORAGE ARRANGEMENT: PALLETIZED/SOLID-PILE/SINGLE, DOUBLE & MULTIPLE ROW RACKS WITH NO SOLID SHELIVING
CONSTRUCTION TYPE: ALL TYPES
MAXIMUM STORAGE HEIGHT: 35 FEET
MAXIMUM CEILING/ROOF HEIGHT: 40 FEET
MINIMUM CLEARANCE FROM SPRINKLER DEFLECTOR TO TOP OF STORAGE: 36 INCHES
SPRINKLER TYPE: ESFR (EARLY SUPPRESSION FAST-RESPONSE)
SPRINKLER K-FACTOR: 16.8
SPRINKLER TEMPERATURE RATING: 205°F
SPRINKLER ORIENTATION: PENDENT
MAXIMUM SPRINKLER DEFLECTOR DISTANCE BELOW CEILING: 14 INCHES
MINIMUM SPRINKLER DEFLECTOR DISTANCE BELOW CEILING: 6 INCHES
MAXIMUM SPRINKLER SPACING/AREA: 10 FEET/100 ft²
MINIMUM SPRINKLER SPACING: 8 FEET/64 ft²
TYPE OF SYSTEM: WET
NUMBER OF DESIGN SPRINKLERS: 12
MINIMUM SPRINKLER OPERATING PRESSURE: 52 PSI
INSIDE HOSE STREAM ALLOWANCE: 0 GPM
OUTSIDE HOSE STREAM ALLOWANCE: 250 GPM
TOTAL HOSE STREAM ALLOWANCE: 250 GPM
IN-RACK SPRINKLERS: NO

SYSTEMS SHALL BE WET ONLY.

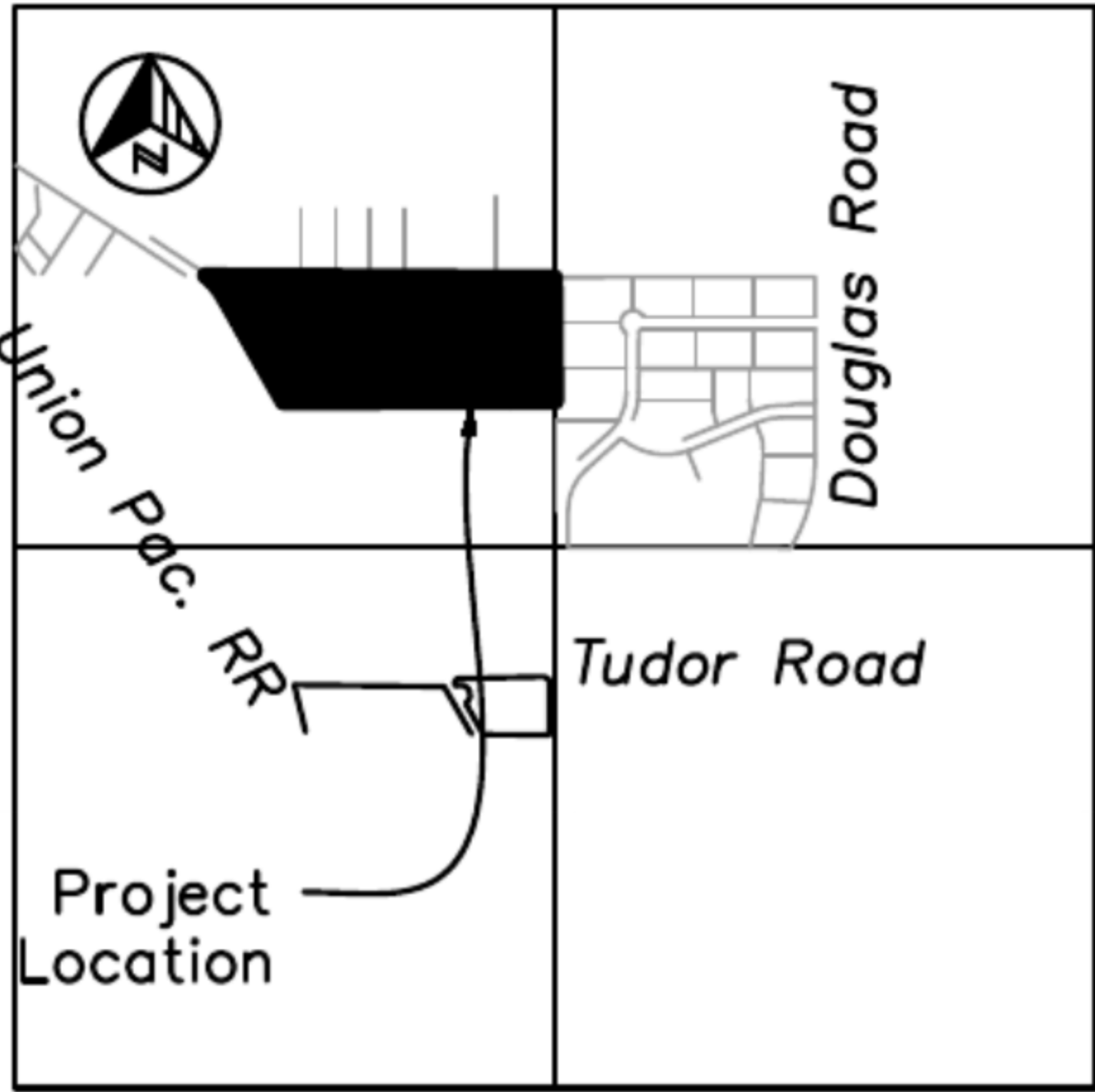
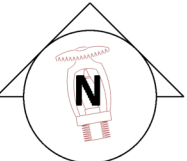
ROOF OR CEILING SLOPES SHALL NOT EXCEED A PITCH OF 2:12.

WHERE ROOF OR CEILING HEIGHTS ARE 30' OR LESS, ESFR SPRINKLERS MAY BE SPACED UP TO 12'.

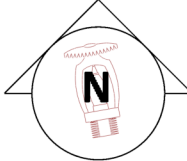
TOTAL SYSTEM SIZE SHALL NOT EXCEED 40,000 ft² COMBINED HIGH PILED/RACK STORAGE & LIGHT/ORDINARY HAZARD SYSTEMS MAY COVER UP TO 52,000 ft²



FLOW TEST LOCATION
NTS



SITE MAP
NTS



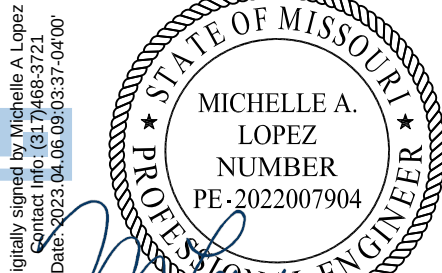
F.E. MORAN



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PROJECT INFORMATION

LEE'S SUMMIT LOGISTICS
BUILDING C LOT 2

NW CORNER OF
NE TUDOR RD & MAIN ST
LEE'S SUMMIT, MO 64086

ISSUE DATES	
PERMIT SET	8-11-22
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FP 0.0

Isolated (non-continuous) obstructions up to 2 feet wide (round lights, etc.): The sprinkler must be at least 12" horizontally from the edge of the obstruction. Isolated (non-continuous) obstructions greater than 2 feet wide (round lights, etc.): please call F.E. MORAN for assistance.

[illegible]

Diagram illustrating the installation of two ESFR sprinklers on a steel joist. The sprinklers are labeled "ESFR SPRINKLER". A 2" wide thru 12" wide pipe, duct, cable tray, etc., is shown running above the sprinklers. The distance between the sprinklers is labeled as 12' MINIMUM.

FIGURE 2 OF 6

ESFR OBSTRUCTION GUIDELINES

12" THRU 24" WIDE DUCT, CABLE TRAY, ETC.

24" OR GREATER

24" OR GREATER

12" THRU 24" PIPE OR PIPE

ROOF DECK

12" THRU 24" WIDE DUCT, CABLE TRAY, ETC.

24" OR GREATER

24" OR GREATER

12" THRU 24" PIPE OR PIPE

Continuous obstructions greater than 12 INCHES, up to 2 FEET in width (ducts, fluorescent lights in rows, racks of pipes, etc.). The sprinkler must be at least 24" horizontally from the edge of the obstruction.

FIGURE 5 OF 6

ESFR OBSTRUCTION GUIDELINES

UP TO 2" WIDE CONDUIT OR PIPING
INSTALLED PARALLEL TO TESP

12" OR
GREATER

12" OR
GREATER

CONTINUOUS HORIZONTAL OR "X"
STEEL JOIST BRIDGING

FOR ALL OBSTRUCTIONS LOCATED
LESS THAN 12" BELOW TESP
SPRINKLER DEFLECTOR

ROOF DECK

NO OBSTRUCTIONS

SINGLE CONDUIT OR PIPING UP TO
2" IN WIDTH ACCEPTABLE IF 24"
OR GREATER FROM SPRINKLER

Continuous obstructions up to 2 INCHES in width (conduit, pipe, joist bridging, etc.) If the obstruction is at least 2 feet below the deflector, disregard it. If the obstruction is closer than 2 feet to the deflector, the sprinkler must be at least 12" horizontally from the edge of the obstruction.

FIGURE 3 OF 6

Figure 6 of 6 illustrates various obstruction types for FM Global Property Loss Prevention Data Sheet 2-2. The diagrams show four scenarios:

- Flat solid obstruction over 24' wide:** A diagram showing a flat solid obstruction over 24' wide with a height dimension 'h' and a storage unit labeled 'STORAGE' below it.
- Flat solid obstruction over 24' wide:** A diagram showing a flat solid obstruction over 24' wide with a height dimension 'h' and a storage unit labeled 'STORAGE' below it.
- Group Round obstruction over 24' Dia:** A diagram showing a group of round obstructions over 24' Dia with a height dimension 'h' and a storage unit labeled 'STORAGE' below it.
- Round obstruction over 24' Dia:** A diagram showing a single round obstruction over 24' Dia with a height dimension 'h' and a storage unit labeled 'STORAGE' below it.

Continuous obstructions greater than 2 FEET in width (large ducts, etc.):
 Figure 2.4.5.3.4 and Figure 2.4.5.3.5 in the FM Global Property Loss Prevention Data Sheet 2-2, page 17 must be met, please call F.E. MORAN for assistance.

FIGURE 6 OF 6

ESFR OBSTRUCTION DETAILS

TWO FLANGE BOLTS
EQUAL DISTANCE TO WALL

WALL

SEE PLAN
FOR DIMENSION

FOR DIMENSION

INCOMING FIRE PROTECTION SUPPLY DETAIL

Diagram illustrating the installation of an ESFR sprinkler head. The diagram shows a cross-section of a roof deck with a horizontal pipe. The ESFR sprinkler head is positioned below the pipe, and a deflector is located further down. Labels include: ROOF DECK, C.L. OF PIPE, ESFR SPKRL. HEAD, and DEFLECTOR. Dimension lines indicate the vertical distances between these components.

N.T.S.

Diagram illustrating the components and clearances for a roof deck assembly:

- HEAD DEFLECTOR BELOW DECK MAXIMUM
- ROOF DECK
- ROOF JOIST
- BRANCH LINE
- ESFR K17 OR K22 PENDENT
- RISER NIPPLE
- MINIMUM CLEARANCE 3'-0"
- MAIN
- STORAGE

N.T.S.

N.T.S. AT ALL SYSTEM LOW POINTS

1½" x 0'-3" NIPPLE

 1/2" BALL VALVE
 1/2" PLUG

N.T.S. AT ALL SYSTEM HIGH POINTS - NFPA 13, 2016 AND LATER EDITION

N.T.S.

NOMINAL PIPE SIZE	SCHEDULE 40			SCHEDULE 10			EDDYFLOW		
	O.D.	I.D.	WALL THICKNESS	O.D.	I.D.	WALL THICKNESS	O.D.	I.D.	WALL THICKNESS
1	1.315	1.049	.133	1.315	1.097	.109	1.315	1.191	.062
1½	1.680	1.380	.140	1.680	1.442	.109	1.680	1.535	.062
1½	1.900	1.610	.145	1.900	1.682	.109	1.900	1.728	.086
2	2.375	2.067	.154	2.375	2.157	.109	2.375	2.203	.086
2½	2.875	2.469	.203	2.875	2.635	.120	2.875	2.705	.086
3	3.500	3.068	.216	3.500	3.260	.120	3.500	3.314	.093
4	4.500	4.026	.237	4.500	4.260	.120	4.500	4.340	.095
5	5.563	5.047	.258	5.563	5.295	.134	----	----	----
6	6.625	6.065	.280	6.625	6.357	.134	----	----	----
8	8.625	7.981	.322	8.625	8.249	.188	----	----	----
10	10.750	10.020	.365	10.750	10.370	.188	----	----	----

	MAXIMUM DISTANCE BETWEEN HANGERS	4" - 8"
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NOMINAL PIPE SIZE	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	N/A
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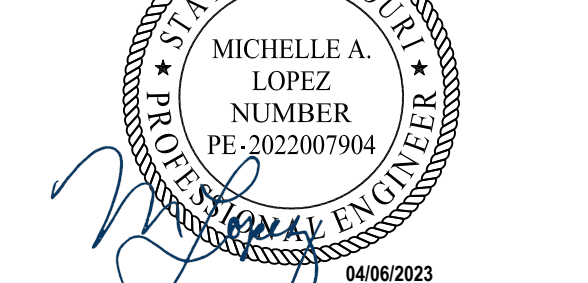
STEEL PIPE (7 / 10)	N/A	12' 0"	12' 0"	15' 0"	15' 0"	15' 0"	15' 0"	15' 0"
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THE CUMULATIVE HORIZONTAL LENGTH OF AN UNSUPPORTED ARMORER TO A SPRINKLER, SPRINKLER DROP OR SPRIG-UP SHALL NOT EXCEED 24"

100 PSI STATIC PRESSURE ON SYSTEM REQUIRES UP-LIFT RESTRAINT WITHIN 12 INCHES HORIZONTALLY OF HEAD FOR ARM-OVERS AND END OF BRANCH LINE



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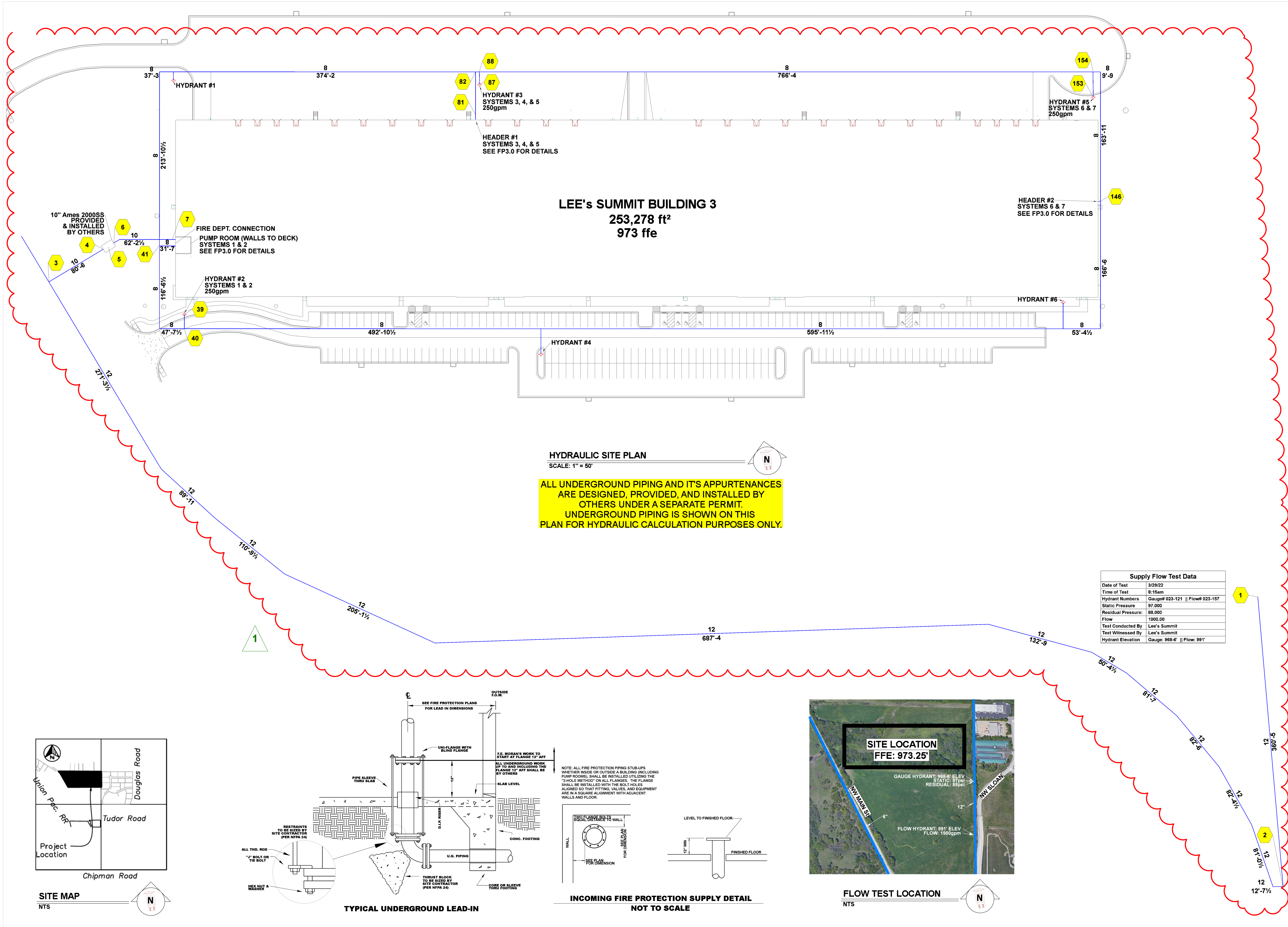
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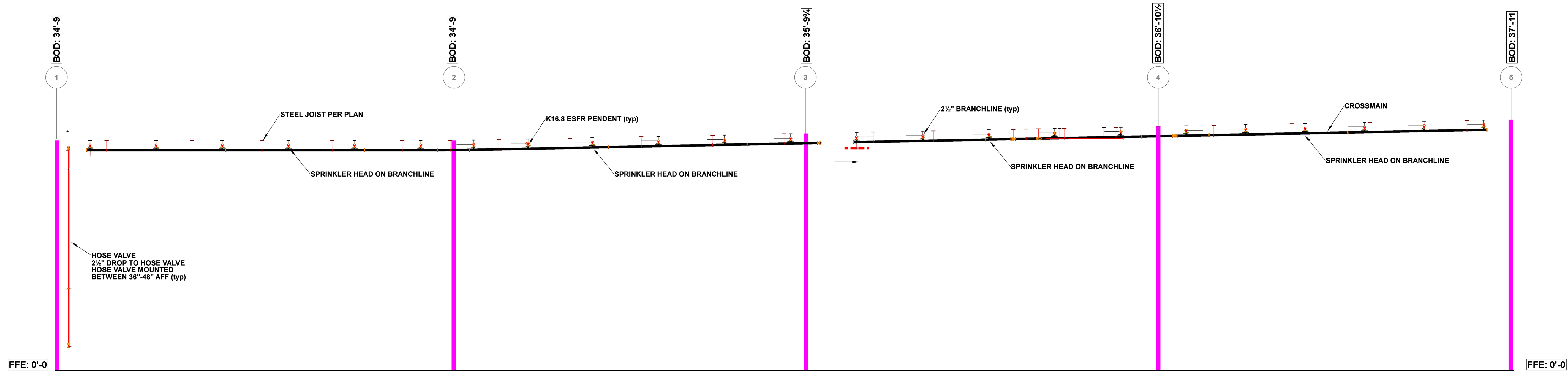
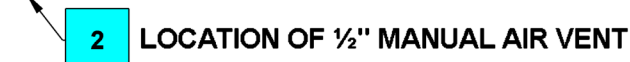
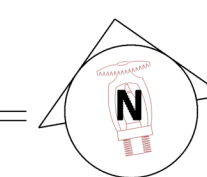
LEE'S SUMMIT LOGISTICS

NW CORNER OF

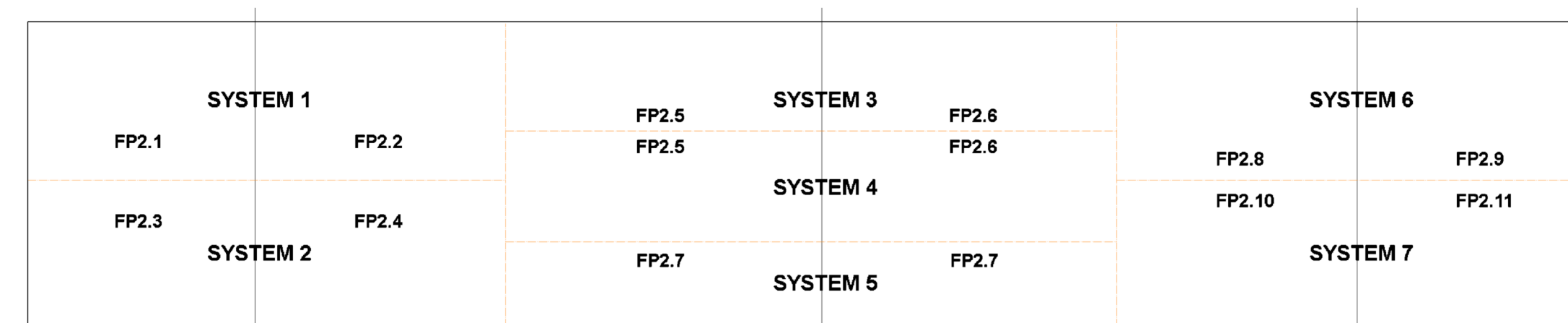
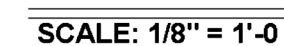
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REVISION #1 - UNDERGROUND CHANGE 3-10-23





SECTION VIEW - LOOKING EAST



KEY PLAN



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MICHELLE A. LOPEZ
NUMBER
PE-20220079004
04/06/2023

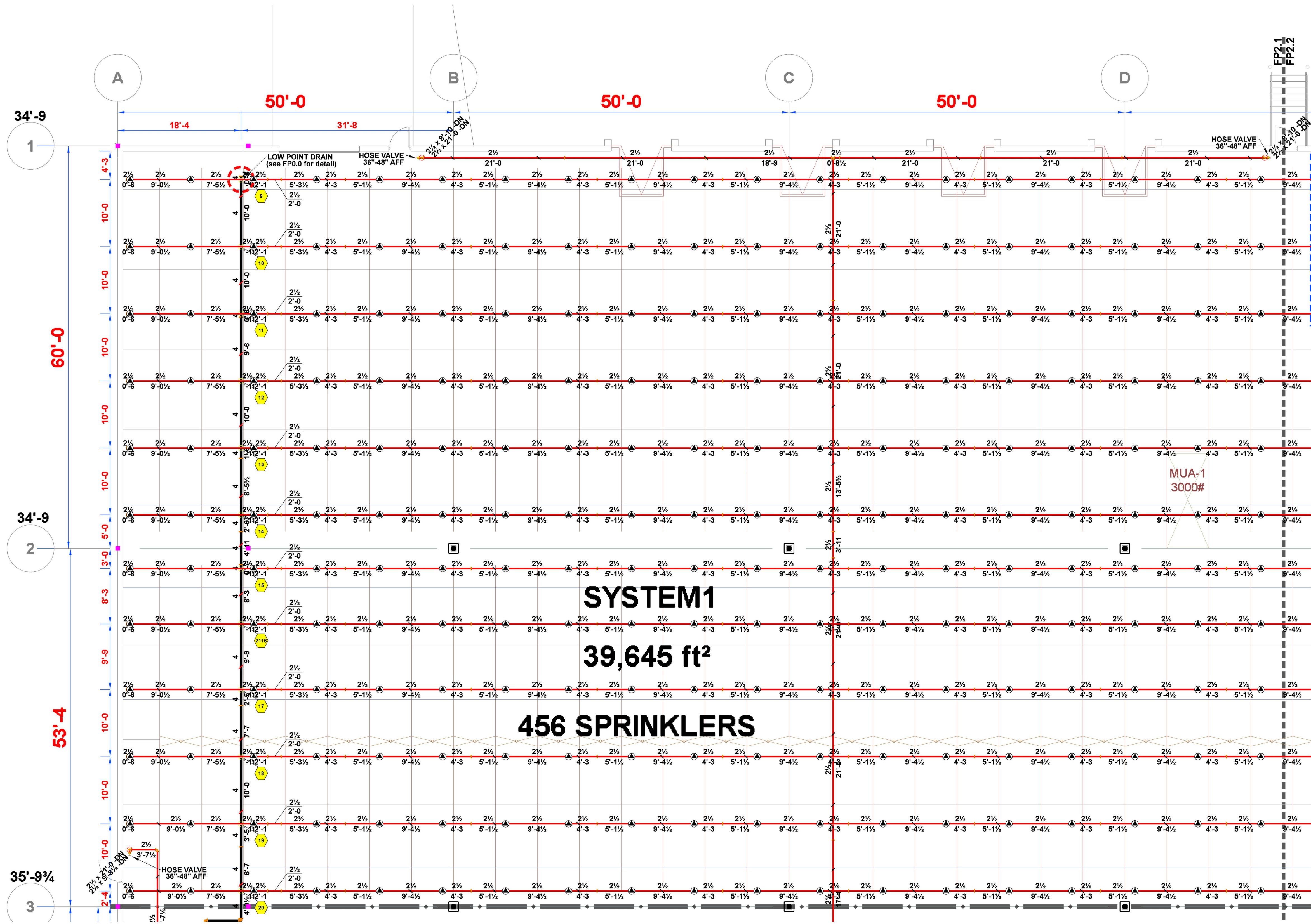
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BUILDING C LOT 2
NW CORNER OF
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LEE'S SUMMIT, MO 64086

ISSUE DATES		
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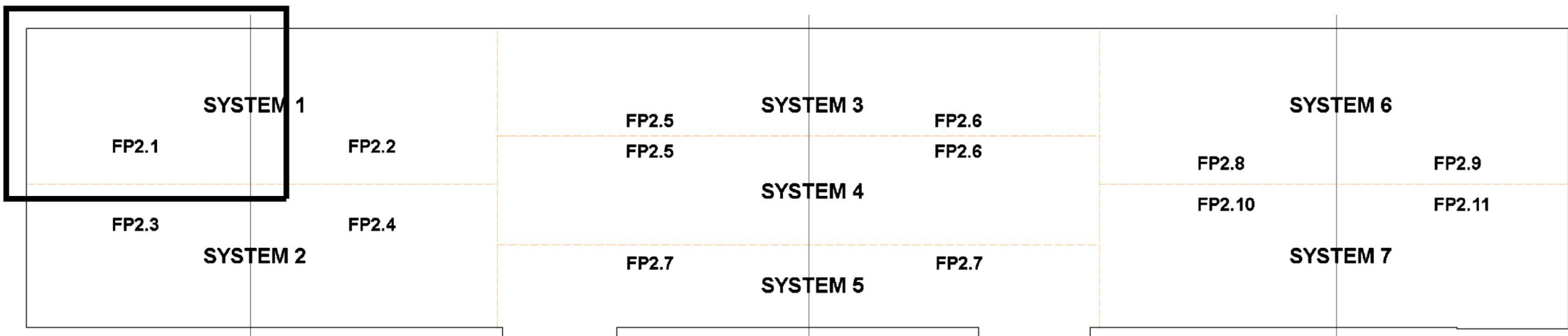
FP 2.1



SYSTEM1
39,645 ft²
456 SPRINKLERS

SYSTEM 1 - WEST
SCALE: 1/8" = 1'-0"

PIPING CENTERLINES
BRANCHLINES ARE TO BE HUNG 0'-8" BELOW TOS
6" MAINS ARE TO BE HUNG 1'-7" BELOW TOS
4" MAINS ARE TO BE HUNG 1'-6" BELOW TOS



Sprinkler Legend										
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Note
	Viking	VK503	ESFR	2825	16.80	Pendent	1/2"	Fast	Brass	205 °F
	Viking	VK3501	Microfast	4	8.00	Upright	1/2"	Quick	Brass	200 °F
				Total = 2829						



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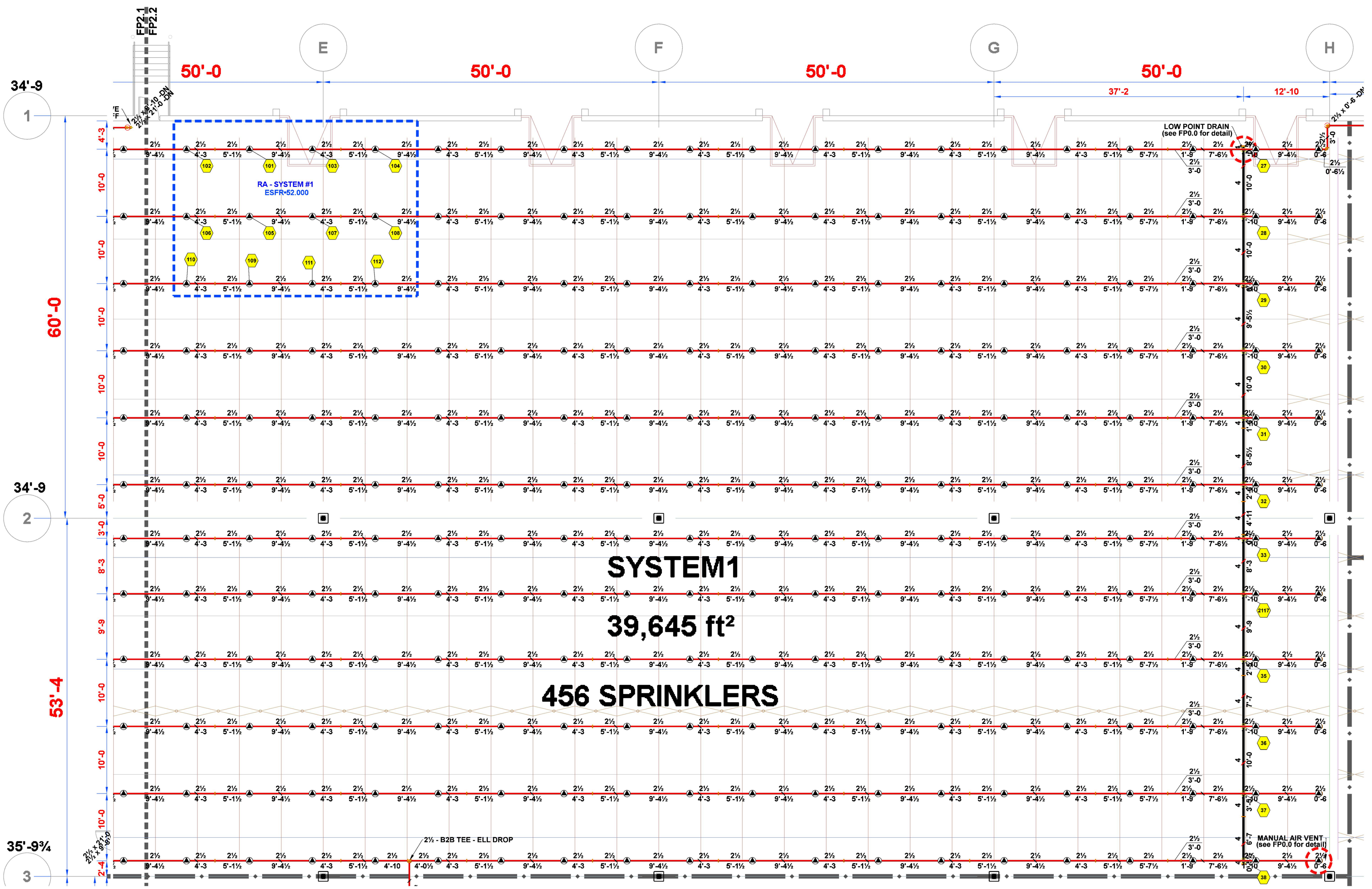
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BUILDING C LOT 2
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FP 2.2

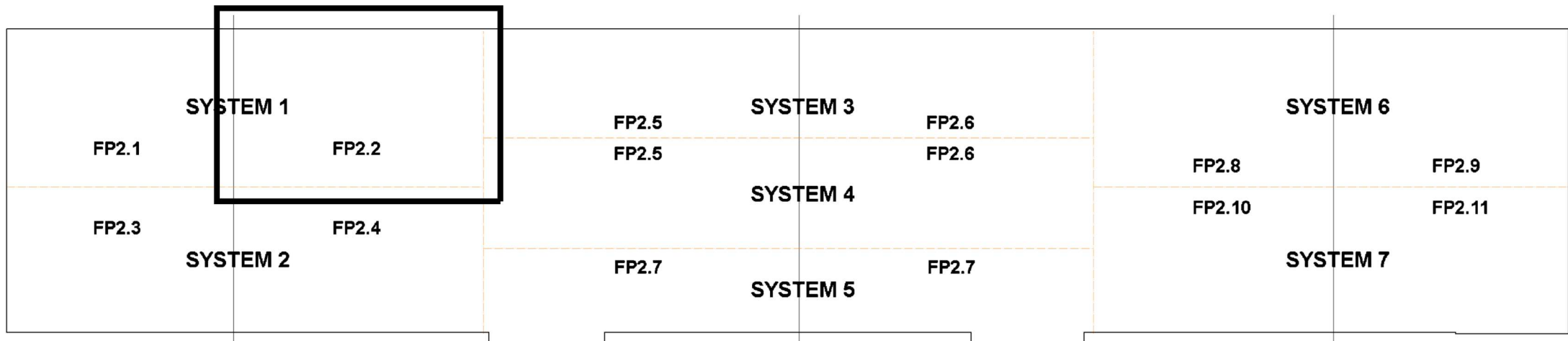


SYSTEM 1 - EAST
SCALE: 1/8" = 1'-0"

PIPING CENTERLINES
BRANCHLINES ARE TO BE HUNG 0'-8" BELOW TOS
6" MAINS ARE TO BE HUNG 1'-7" BELOW TOS
4" MAINS ARE TO BE HUNG 1'-6" BELOW TOS

Hydraulic Information									
Remote Area #1 - System 1									
OCCUPANCY CLASSIFICATION	ESFR								
MIN. END HEAD PRESSURE	52.000 (ESFR)								
TOTAL HOSE STREAMS	250.00								
TOTAL HEADS FLOWING	12								
K-FACTOR	16.80								
TOTAL WATER REQUIRED	1708.60								
TOTAL PRESSURE REQUIRED	82.824								
BASE of RISER (gpm)	1708.60								
BASE of RISER (psi)	63.780								
SAFETY MARGIN (psi)	+6.781 (7.6%)								

Sprinkler Legend										
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Note
	Viking	VK503	ESFR	2825	16.80	Pendent	3/4"	Fast	Brass	205 °F
	Viking	VK3501	Microfast	4	8.00	Upright	3/4"	Quick	Brass	200 °F
				Total = 2829						





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COA # E2022012018

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MICHELLE A. LOPEZ
NUMBER
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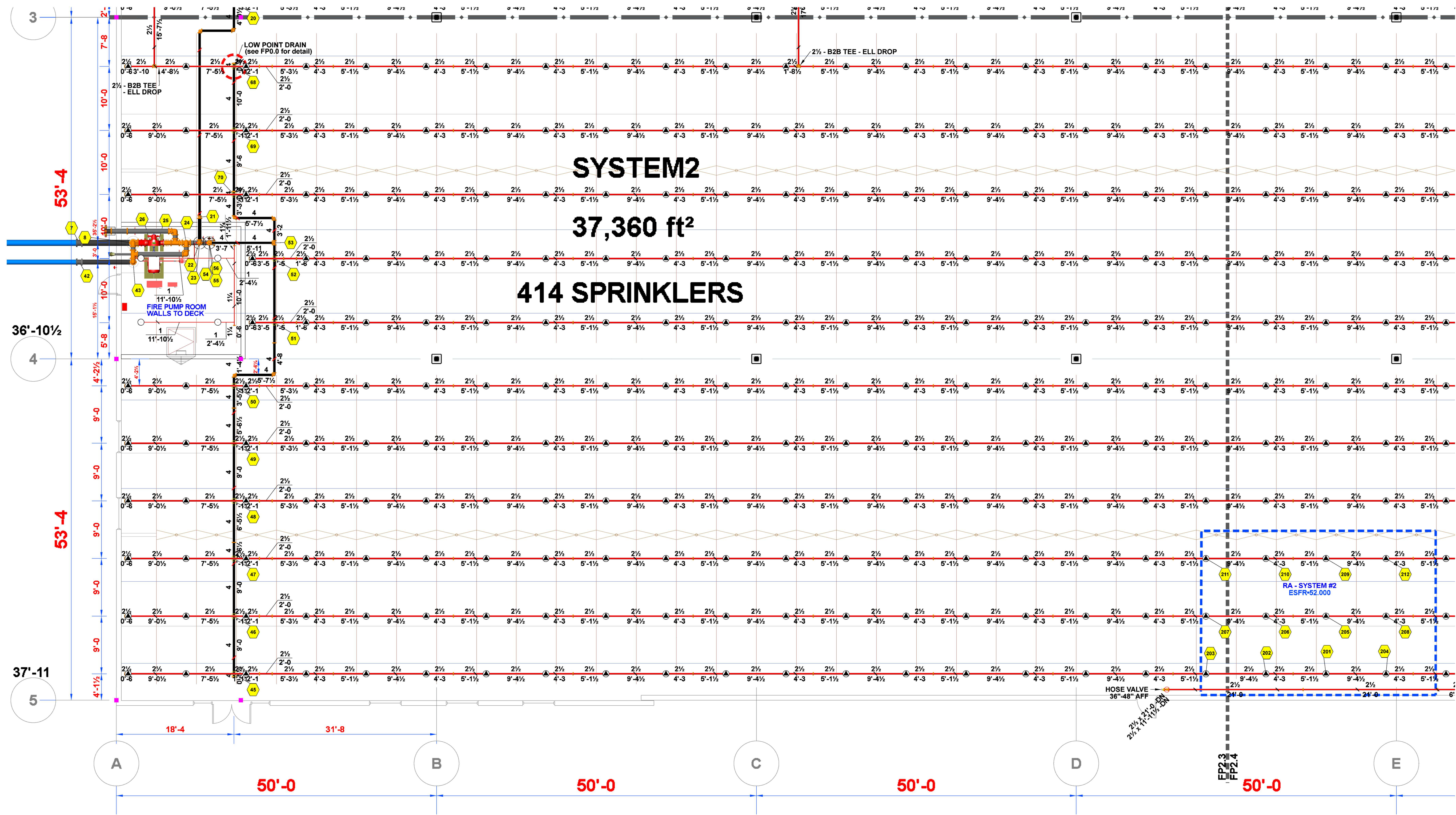
LEE'S SUMMIT LOGISTICS
BUILDING C LOT 2

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FP 2.3

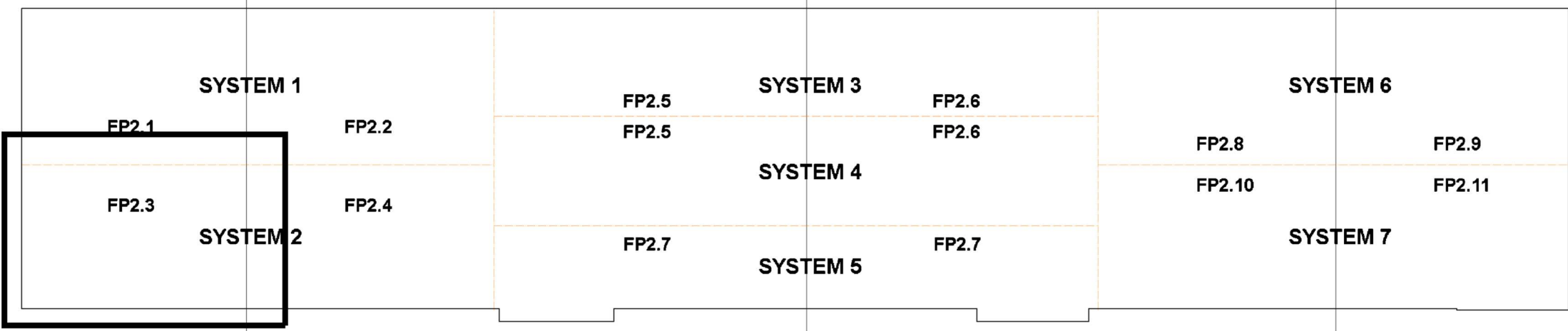


SYSTEM 2 - WEST
SCALE: 1/8" = 1'-0"

PIPING CENTERLINES
BRANCHLINES ARE TO BE HUNG 0'-8" BELOW TOS
6" MAINS ARE TO BE HUNG 1'-7" BELOW TOS
4" MAINS ARE TO BE HUNG 1'-6" BELOW TOS

Hydraulic Information	
Remote Area #2 - System 2	
OCCUPANCY CLASSIFICATION	ESFR
MIN. END HEAD PRESSURE	52.000 (ESFR)
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	12
K-FACTOR	16.80
TOTAL WATER REQUIRED	1709.09
TOTAL PRESSURE REQUIRED	68.093
BASE of RISER (gpm)	1709.09
BASE of RISER (psi)	49.041
SAFETY MARGIN (psi)	+21.508 (24.0%)

Sprinkler Legend										
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature
	Viking	VK503	ESFR	2825	16.80	Pendent	3/4"	Fast	Brass	205 °F
	Viking	VK3501	Microfast	4	8.00	Upright	3/4"	Quick	Brass	200 °F
				Total = 2829						





PROJECT INFORMATION

LEE'S SUMMIT LOGISTICS
BUILDING C LOT 2

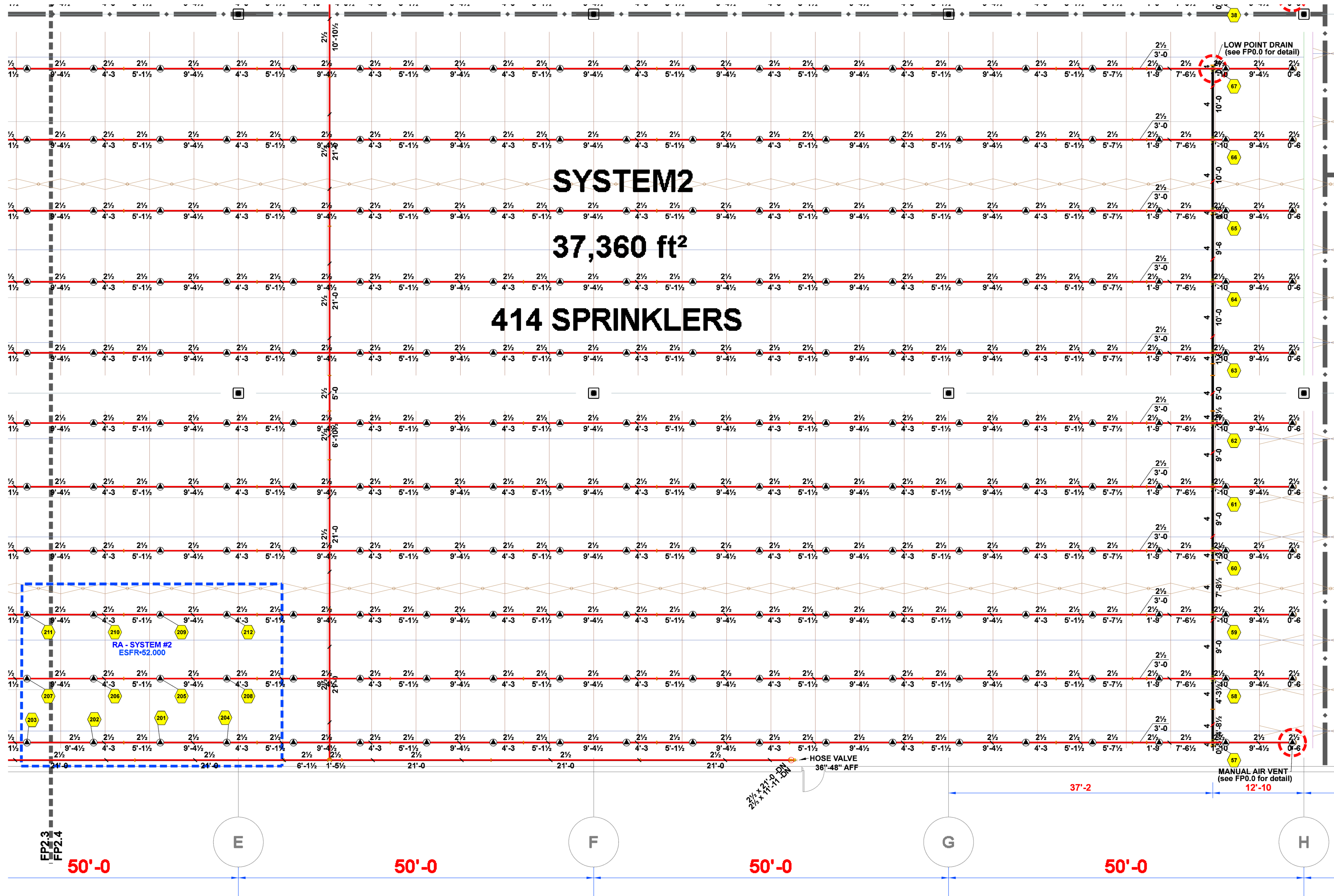
NW CORNER OF
NE TUDOR RD & MAIN ST
LEE'S SUMMIT, MO 64086

ISSUE DATES

PERMIT SET	8-11-22
REVISION #1 - UNDERGROUND CHANGE	3-10-23

210300

FP 2.4

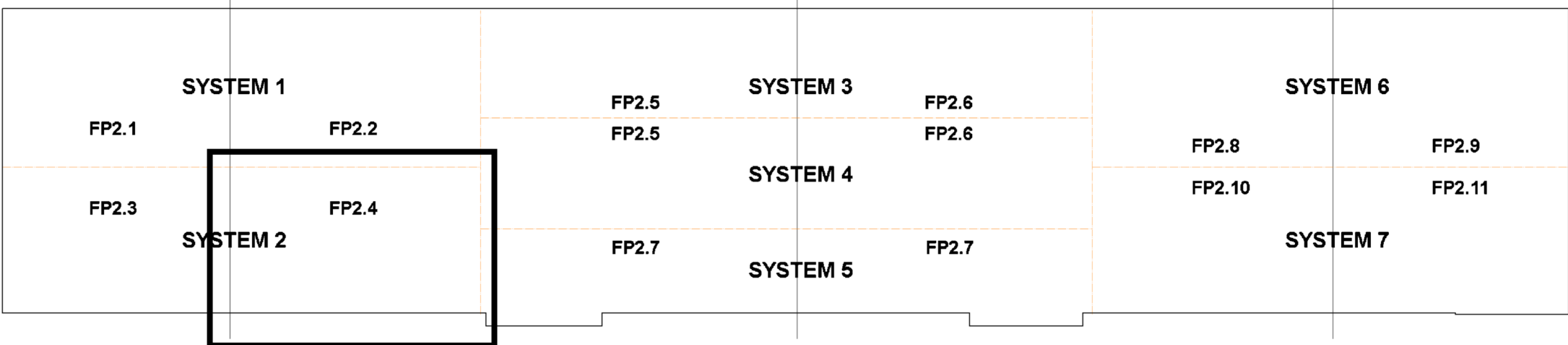


SYSTEM 2 - EAST
SCALE: 1/8" = 1'-0"

PIPING CENTERLINES
BRANCHLINES ARE TO BE HUNG 0'-8" BELOW TOS
6" MAINS ARE TO BE HUNG 1'-7" BELOW TOS
4" MAINS ARE TO BE HUNG 1'-6" BELOW TOS

Hydraulic Information									
Remote Area #2 - System 2									
OCCUPANCY CLASSIFICATION		ESFR							
MIN. END HEAD PRESSURE		52.000 (ESFR)							
TOTAL HOSE STREAMS		250.00							
TOTAL HEADS FLOWING		12							
K-FACTOR		16.80							
TOTAL WATER REQUIRED		1709.09							
TOTAL PRESSURE REQUIRED		68.093							
BASE of RISER (gpm)		1709.09							
BASE of RISER (psi)		49.041							
SAFETY MARGIN (psi)		+21.508 (24.0%)							

Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
	Viking	VK503	ESFR	2825	16.80	Pendent	3/4"	Fast	Brass	205 °F	
	Viking	VK3501	Microfast	4	8.00	Upright	3/4"	Quick	Brass	200 °F	BRASS
				Total = 2829							





3001 RESEARCH Rd
CHAMPAIGN, IL 61822
(217) 356-0700
MISSOURI COA:
E-2022012018



CERTIFICATION

F.E. MORAN, INC. FIRE PROTECTION
COA # E2022012018

STATE OF MISSOURI
MICHELLE A. LOPEZ
NUMBER
PE-20220079004
04/06/2023

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PROJECT INFORMATION

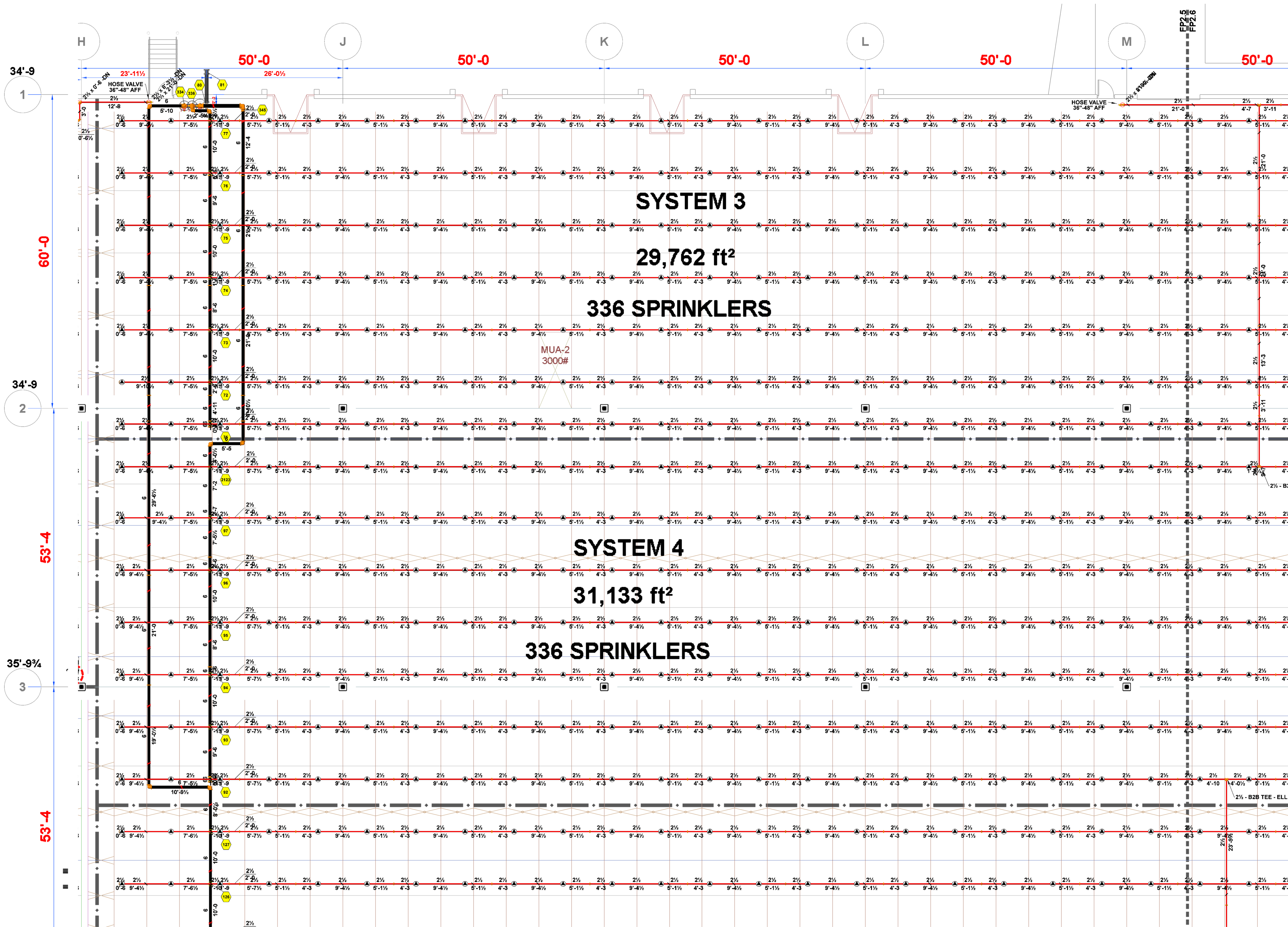
LEE'S SUMMIT LOGISTICS
BUILDING C LOT 2

NW CORNER OF
NE TUDOR RD & MAIN ST
LEE'S SUMMIT, MO 64086

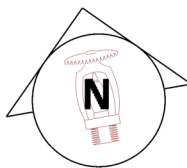
ISSUE DATES	
PERMIT SET	8-11-22
REVISION #1 - UNDERGROUND CHANGE	3-10-23

210300

FP 2.5

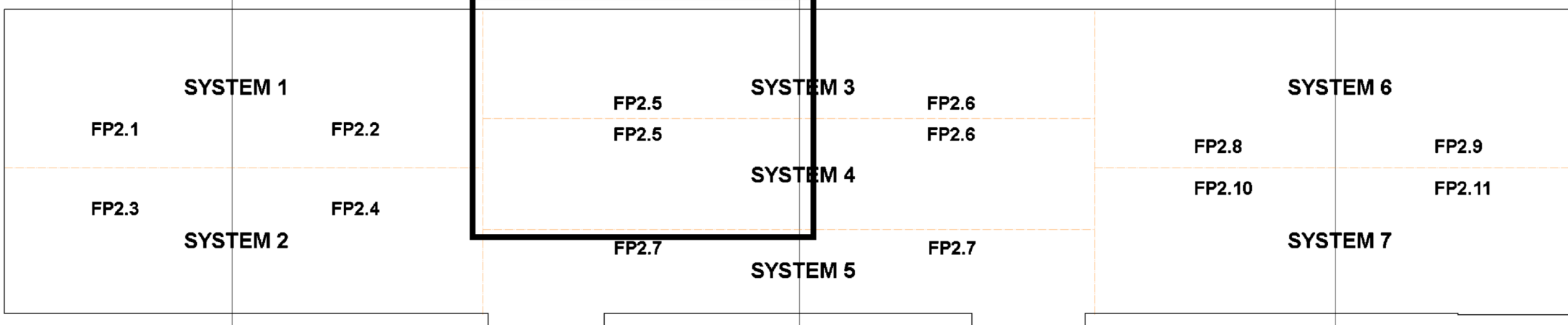


SYSTEMS 3 & 4 - WEST
SCALE: 3/32" = 1'-0"



PIPING CENTERLINES
BRANCHLINES ARE TO BE HUNG 0'-8" BELOW TOS
6" MAINS ARE TO BE HUNG 1'-7" BELOW TOS
4" MAINS ARE TO BE HUNG 1'-6" BELOW TOS

Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
	Viking	VK503	ESFR	2825	16.80	Pendent	3/4"	Fast	Brass	205 °F	
	Viking	VK501	Microfast	4	8.00	Upright	3/4"	Quick	Brass	200 °F	BRASS
				Total = 2829							





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COA # E2022012018

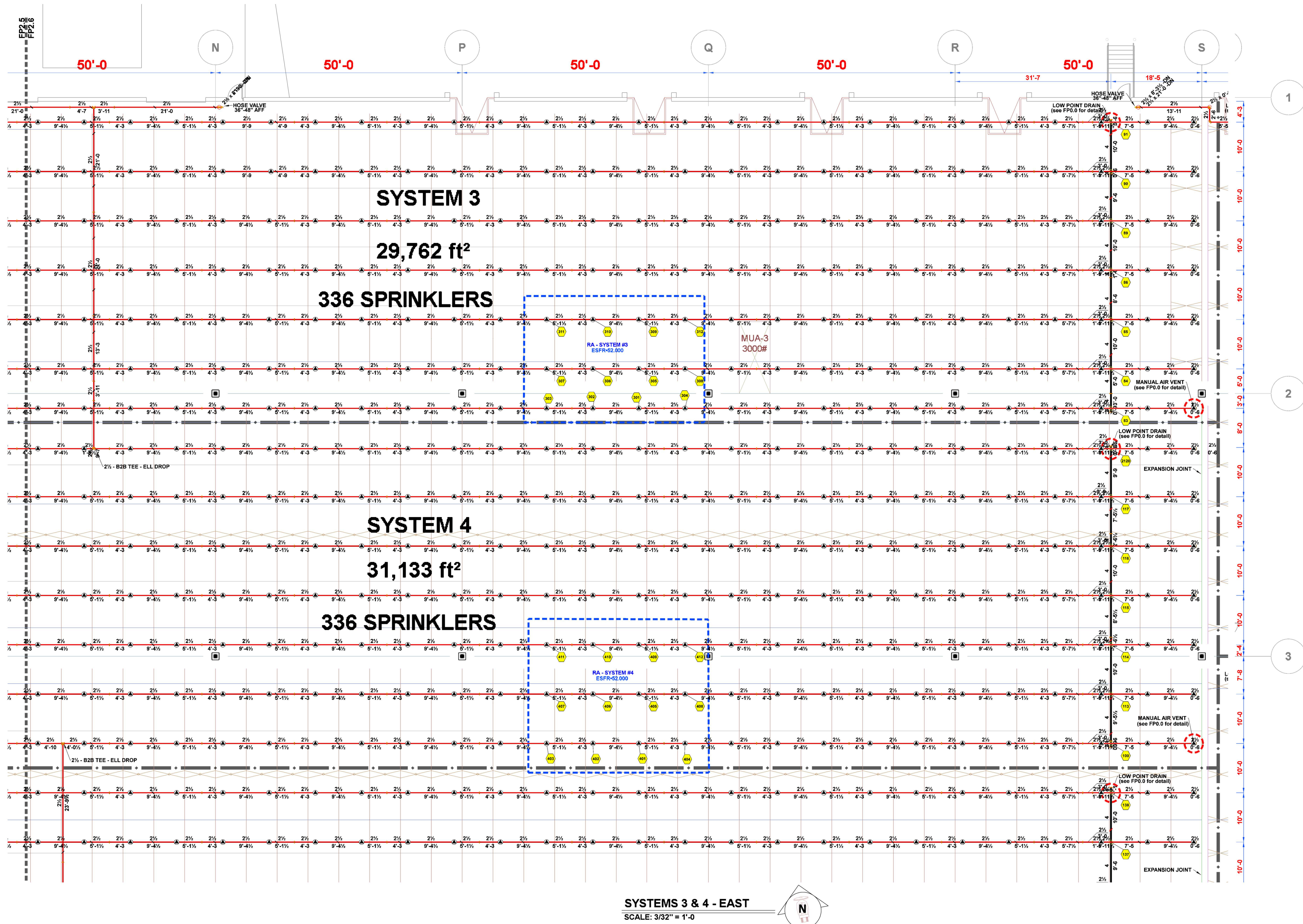
MICHELLE A. LOPEZ
NUMBER
PE-2022007904
04/06/2023
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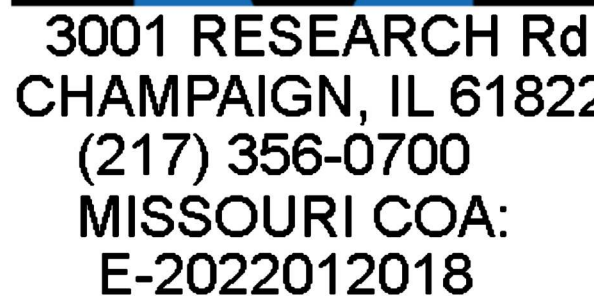
PROJECT INFORMATION
LEE'S SUMMIT LOGISTICS
BUILDING C LOT 2
NW CORNER OF
NE TUDOR RD & MAIN ST
LEE'S SUMMIT, MO 64086

ISSUE DATES
PERMIT SET 8-11-22
REVISION #1 - UNDERGROUND CHANGE 3-10-23

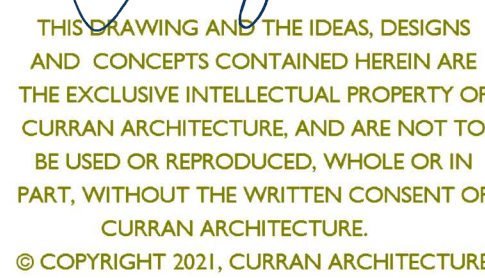
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FP 2.6





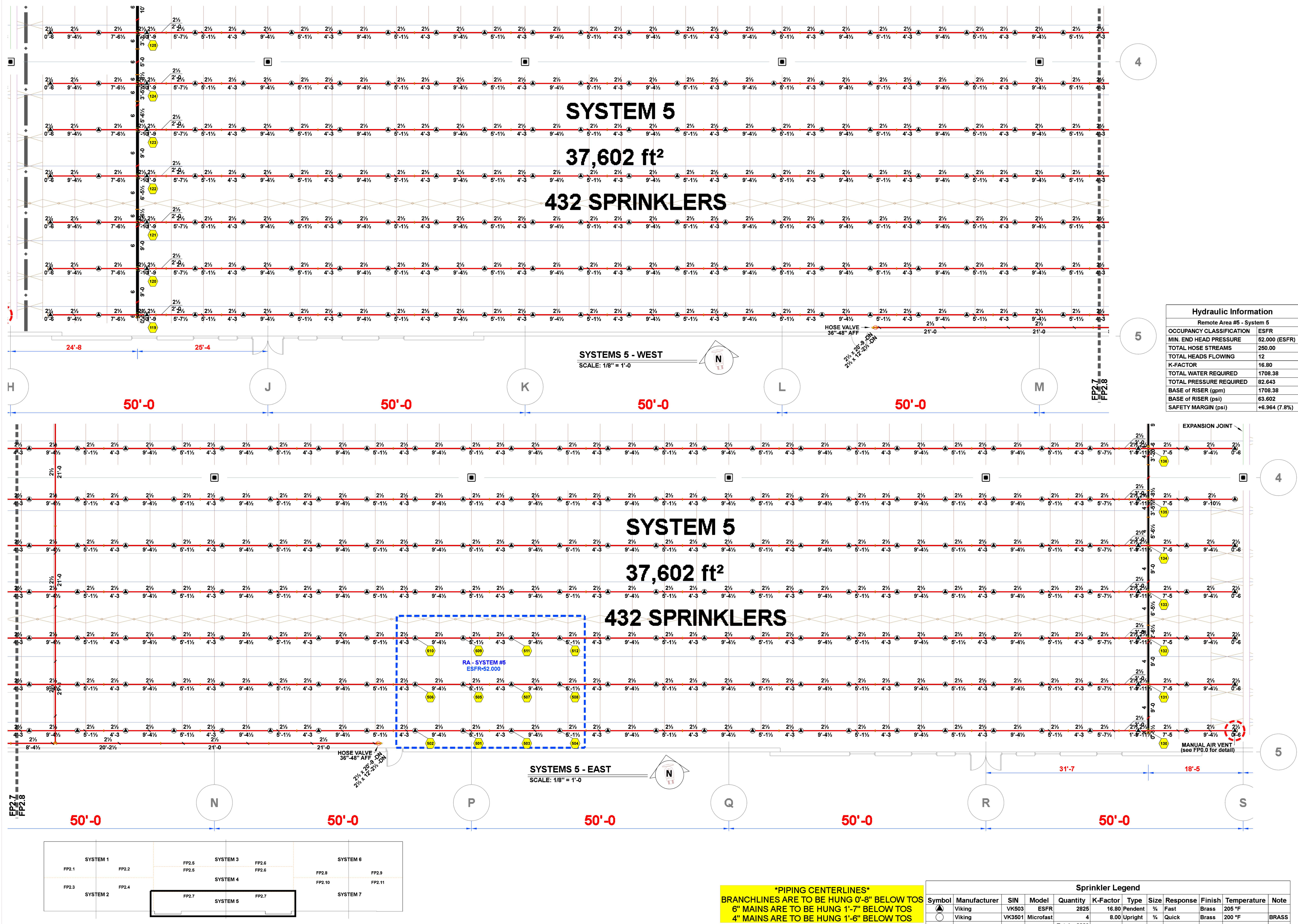
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COA # E2022012018



NW CORNER OF
NE TUDOR RD & MAIN ST
LEE'S SUMMIT, MO 64086

REVISION #1 - UNDERGROUND CHANGE 3-10-23

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PROJECT INFORMATION

LEE'S SUMMIT LOGISTICS
BUILDING C LOT 2

NW CORNER OF
NE TUDOR RD & MAIN ST
LEE'S SUMMIT, MO 64086

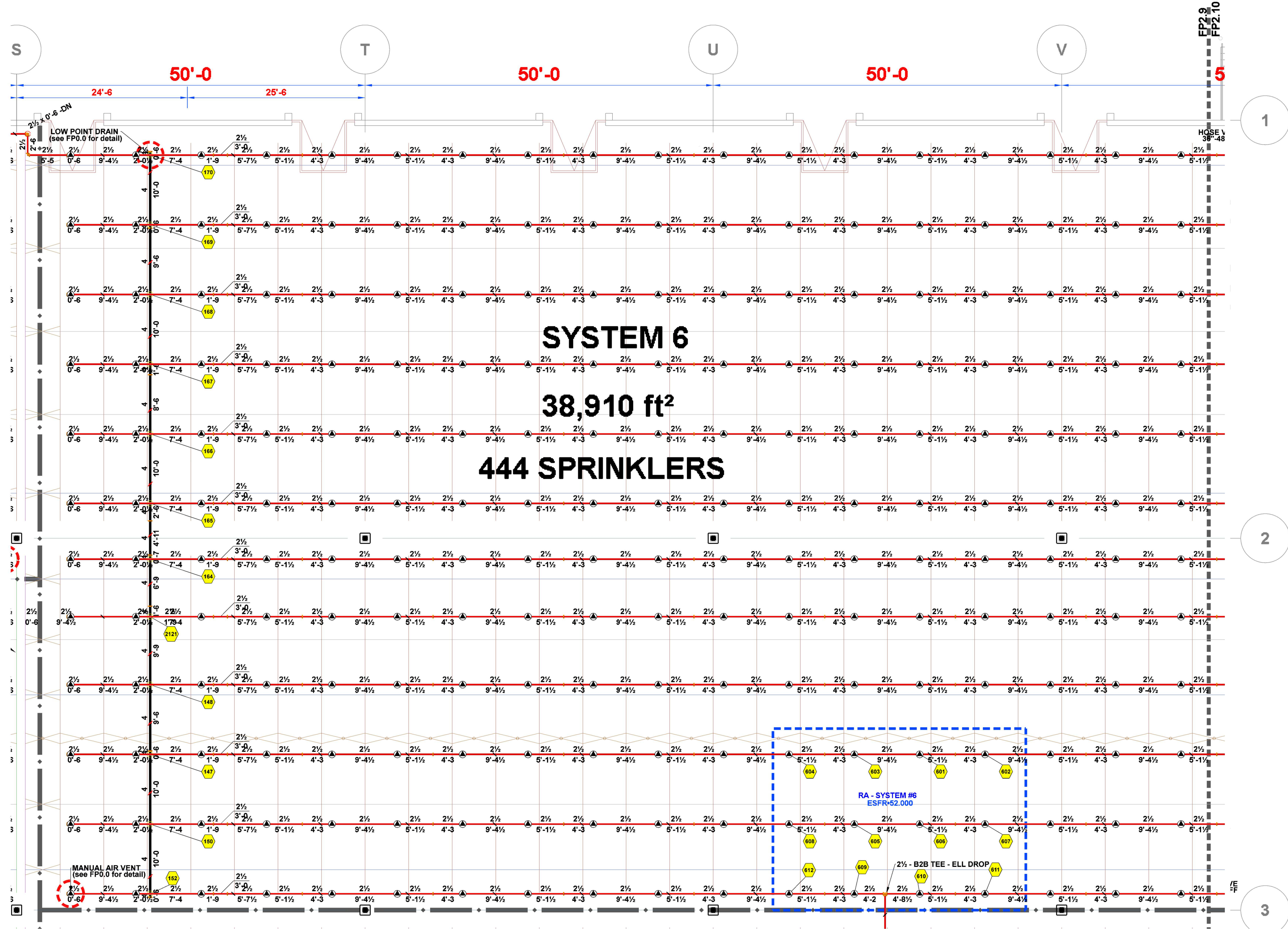
ISSUE DATES

PERMIT SET 8-11-22

REVISION #1 - UNDERGROUND CHANGE 3-10-23

210300

FP 2.8



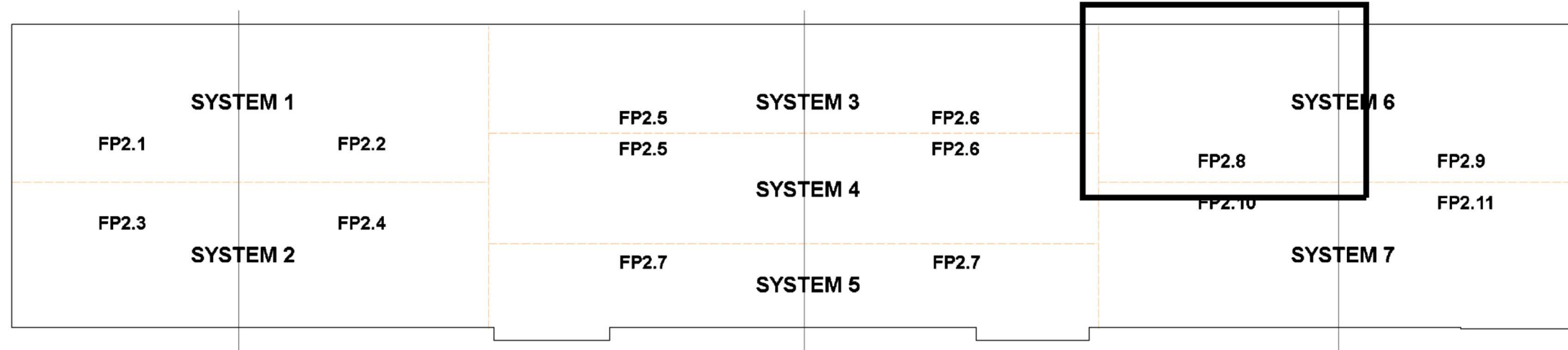
SYSTEMS 6 - WEST

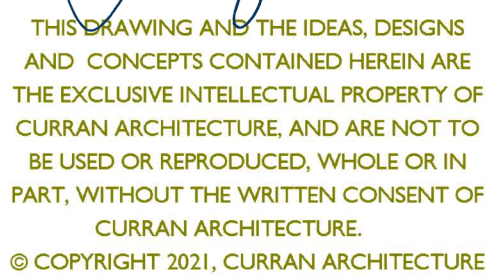
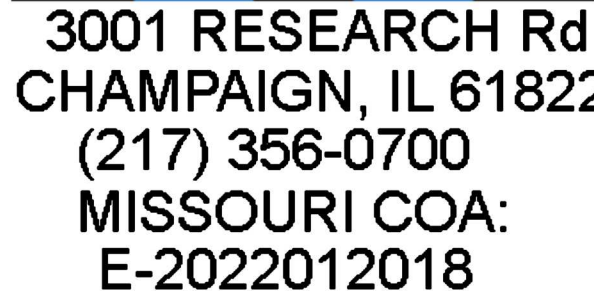
SCALE: 1/8" = 1'-0"

PIPING CENTERLINES
BRANCHLINES ARE TO BE HUNG 0'-8" BELOW TOS
6" MAINS ARE TO BE HUNG 1'-7" BELOW TOS
4" MAINS ARE TO BE HUNG 1'-6" BELOW TOS

Hydraulic Information	
Remote Area #6 - System 6	
OCCUPANCY CLASSIFICATION	ESFR
MIN. END HEAD PRESSURE	52.000 (ESFR)
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	12
K-FACTOR	16.80
TOTAL WATER REQUIRED	1710.77
TOTAL PRESSURE REQUIRED	80.322
BASE of RISER (gpm)	1710.77
BASE of RISER (psi)	61.245
SAFETY MARGIN (psi)	+9.266 (10.3%)

Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
	Viking	VK503	ESFR	2825	16.80	Pendent	3/4"	Fast	Brass	205 °F	
	Viking	VK3501	Microfast	4	8.00	Upright	3/4"	Quick	Brass	200 °F	BRASS
				Total = 2829							

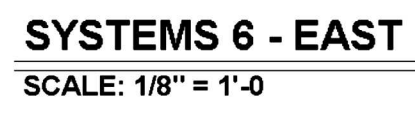




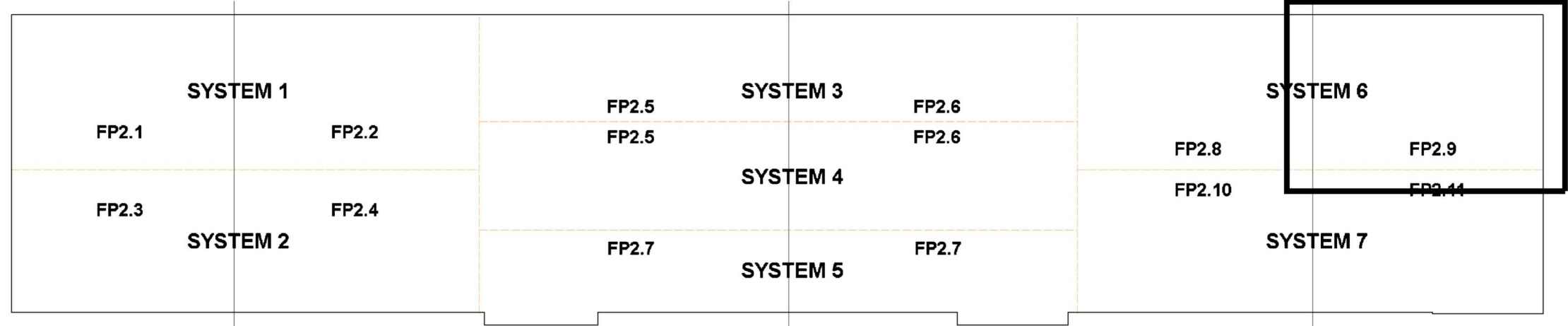
PROJECT INFORMATION
LEE'S SUMMIT LOGISTICS
BUILDING C LOT 2
NW CORNER OF
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LEE'S SUMMIT, MO 64086

ISSUE DATES	
PERMIT SET	8-11-22
REVISION #1 - UNDERGROUND CHANGE	3-10-23

FP 2.9



PIPING CENTERLINES
BRANCHLINES ARE TO BE HUNG 0'-8" BELOW TOS
6" MAINS ARE TO BE HUNG 1'-7" BELOW TOS
4" MAINS ARE TO BE HUNG 1'-6" BELOW TOS



Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
	Viking	VK503	ESFR	2825	16.80	Pendent	¾"	Fast	Brass	205 °F	
	Viking	VK3501	Microfast	4	8.00	Upright	¾"	Quick	Brass	200 °F	BRASS
				Total = 2829							



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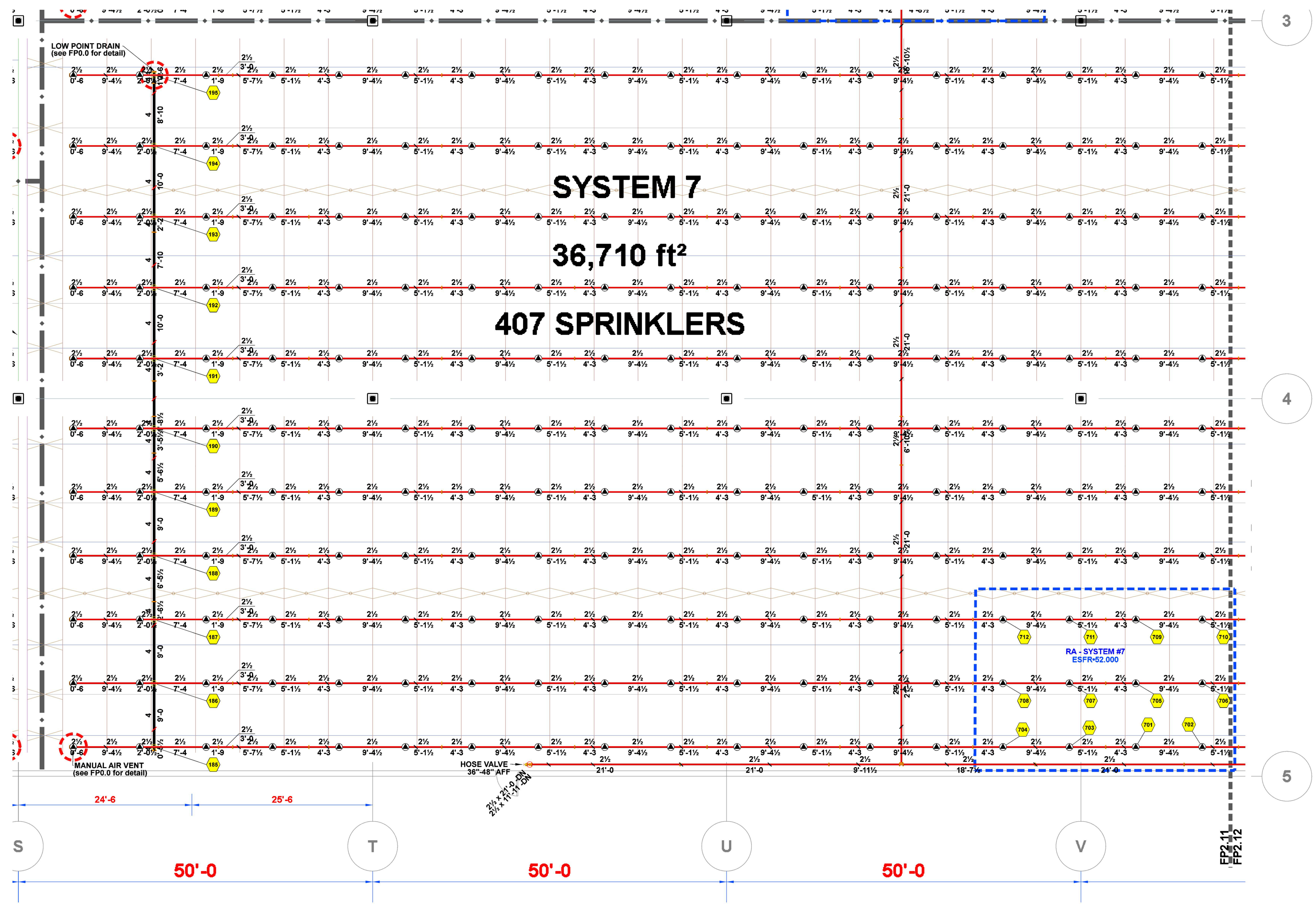
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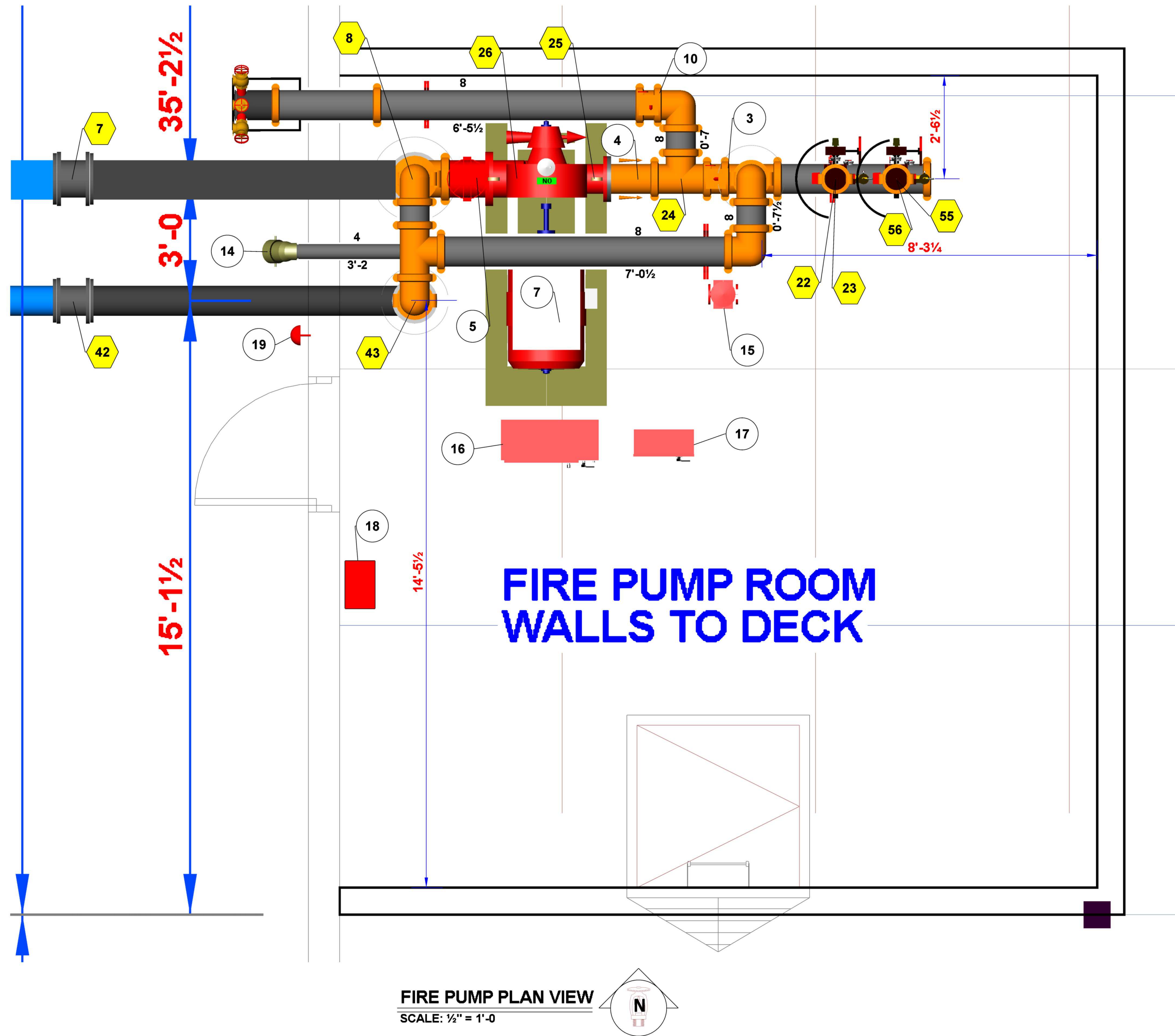
PROJECT INFORMATION
LEE'S SUMMIT LOGISTICS
BUILDING C LOT 2
NW CORNER OF
NE TUDOR RD & MAIN ST
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ISSUE DATES		
PERMIT SET	8-11-22	
REVISION #1 - UNDERGROUND CHANGE	3-10-23	

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FP 2.10





FIRE PUMP NOTES:
-IN ADDITION TO THE FOLLOWING NOTES, ALL WORK AND MATERIAL SHALL CONFORM TO NFPA 13 AND NFPA 20, AS APPLICABLE

NFPA 20 REQUIREMENTS:

EQUIPMENT PROTECTION:
SUITABLE MEANS SHALL BE PROVIDED FOR MAINTAINING THE TEMPERATURE OF A PUMP ROOM OR PUMP HOUSE, WHERE REQUIRED, ABOVE 40 DEG F. ARTIFICIAL LIGHT SHALL BE PROVIDED IN THE PUMP ROOM OR PUMP HOUSE. EMERGENCY LIGHTING SHALL BE PROVIDED BY FIXED OR PORTABLE BATTER OPERATED LIGHTS, INCLUDING FLASHLIGHTS. EMERGENCY LIGHTS SHALL NOT BE CONNECTED TO AN ENGINE STARTING BATTERY. PROVISION SHALL BE MADE FOR VENTILATION OF THE PUMP ROOM OR PUMP HOUSE. FLOORS SHALL BE PITCHED FOR ADEQUATE DRAINAGE OF ESCAPING WATER AWAY FROM CRITICAL EQUIPMENT SUCH AS THE PUMP, DRIVER, CONTROLLER, ETC. THE PUMP ROOM OR PUMP HOUSE SHALL BE PROVIDED WITH A FLOOR DRAIN THAT WILL DISCHARGE TO A FROST-FREE LOCATION.

PIPE AND FITTINGS:
WHERE CORROSIVE CONDITIONS EXIST, THE STEEL SUCTION PIPE SHALL BE GALVANIZED. ALL PROVISIONS FOR WELDED PIPE SHALL BE IN ACCORDANCE WITH NFPA 51B, STANDARD FOR FIRE PREVENTION DURING WELDING, CUTTING, AND OTHER HOT WORK.

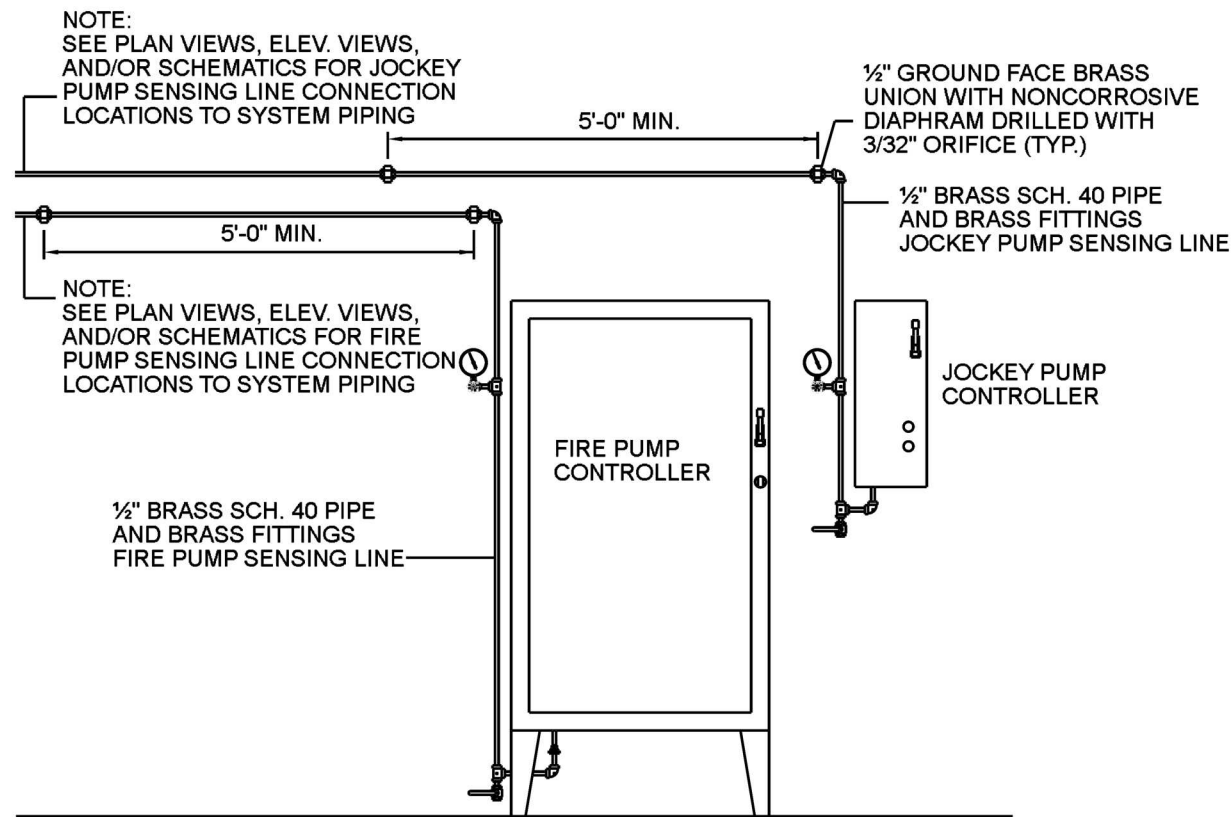
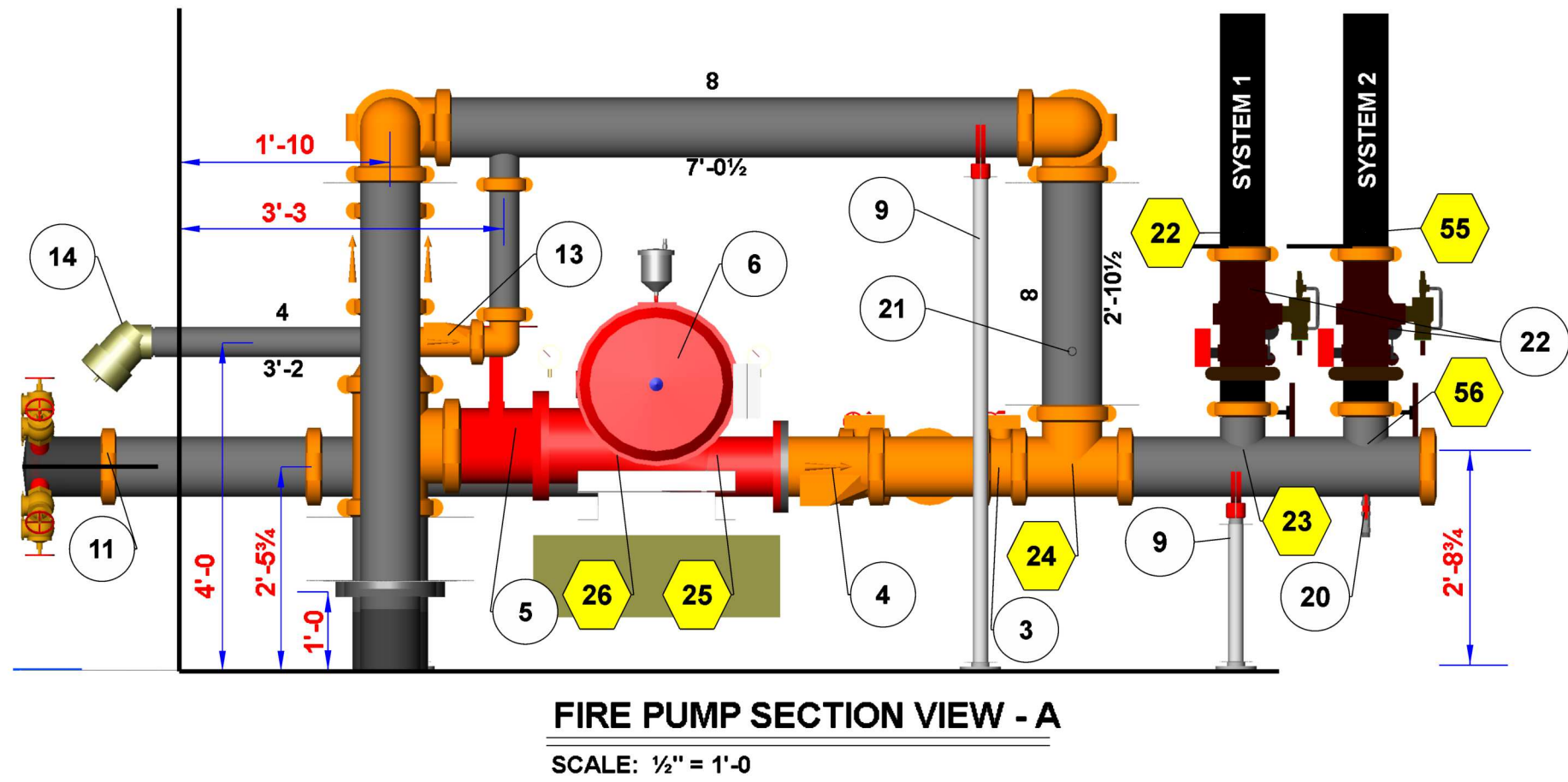
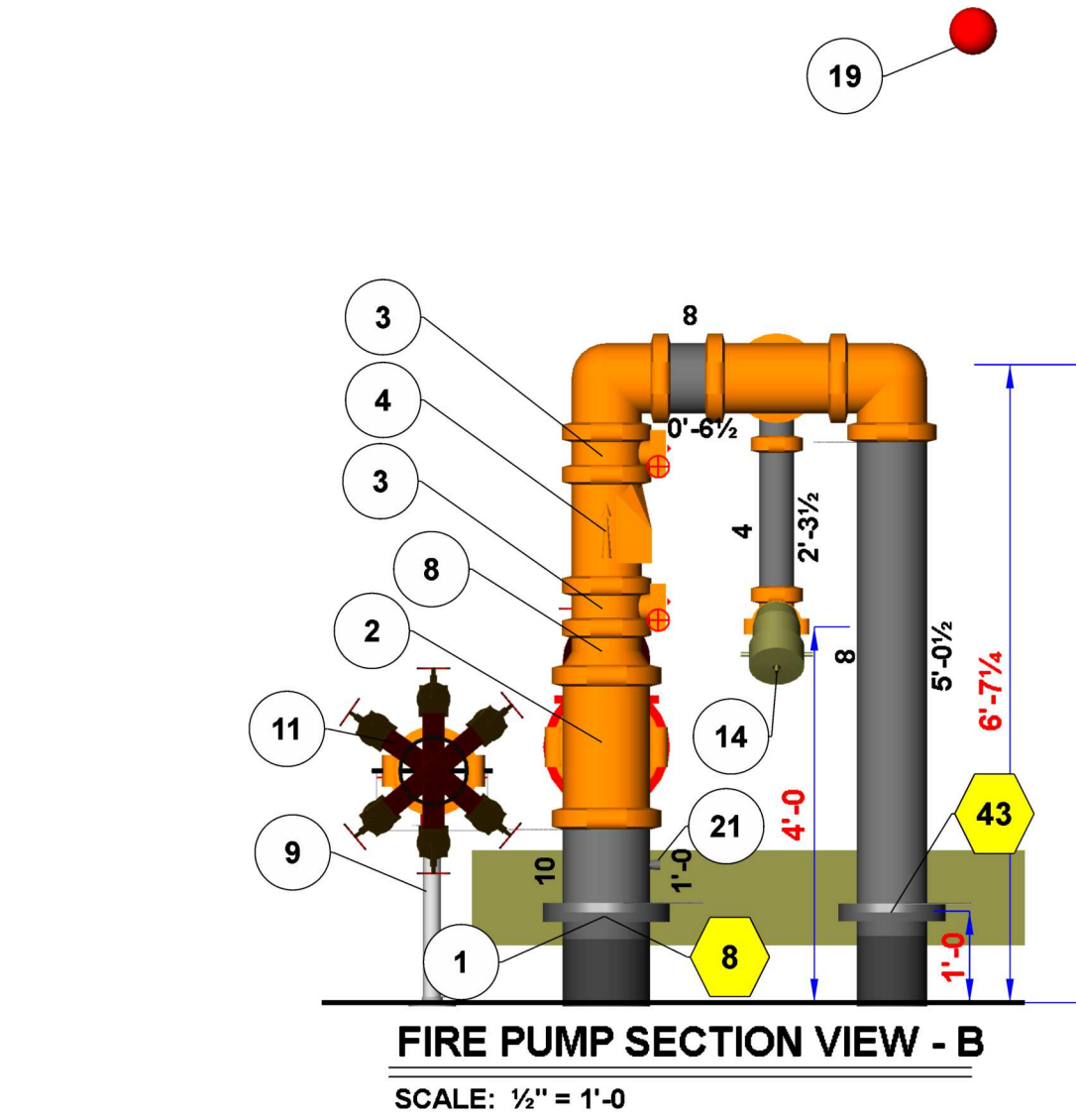
SUCTION PIPE AND FITTINGS:
THE SUCTION PIPE SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH NFPA. A BY-PASS SHALL BE INSTALLED AROUND THE PUMP WHEN THE SUCTION PRESSURE IS OF MATERIAL VALUE WITHOUT THE PUMP. THE PIPE SIZE OF THE BY-PASS SHALL BE AS LARGE AS THE SIZE REQUIRED FOR SUCTION PIPE IN NFPA 20. THE BY-PASS CONTROL VALVES SHALL BE NORMALLY OPEN

DISCHARGE PIPE:
SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH NFPA 13. THE SIZE OF THE PUMP DISCHARGE PIPE AND FITTINGS SHALL BE NOT LESS THAN THAT GIVEN IN NFPA 20.

ELECTRIC DRIVE FOR PUMPS:
ALL ELECTRICAL WORK TO SUPPLY POWER TO THE FIRE PUMP SHALL BE IN ACCORDANCE WITH CHAPTER 6 OF NFPA 20. ELECTRICAL WORK SHALL COMPLY WITH NFPA 70, ARTICLE 695 AND OTHER APPLICABLE ARTICLES. THE FIRE PUMP FEEDER CIRCUIT CONDUCTORS AND THEIR ACCESSORIES SHALL BE DEDICATED AND PROTECTED TO RESIST POSSIBLE DAMAGE BY FIRE, STRUCTURAL FAILURE, OR OPERATIONAL ACCIDENT. THE SUPPLY CONDUCTORS DIRECTLY CONNECT THE POWER SOURCE TO THE LISTED FIRE PUMP CONTROLLER.

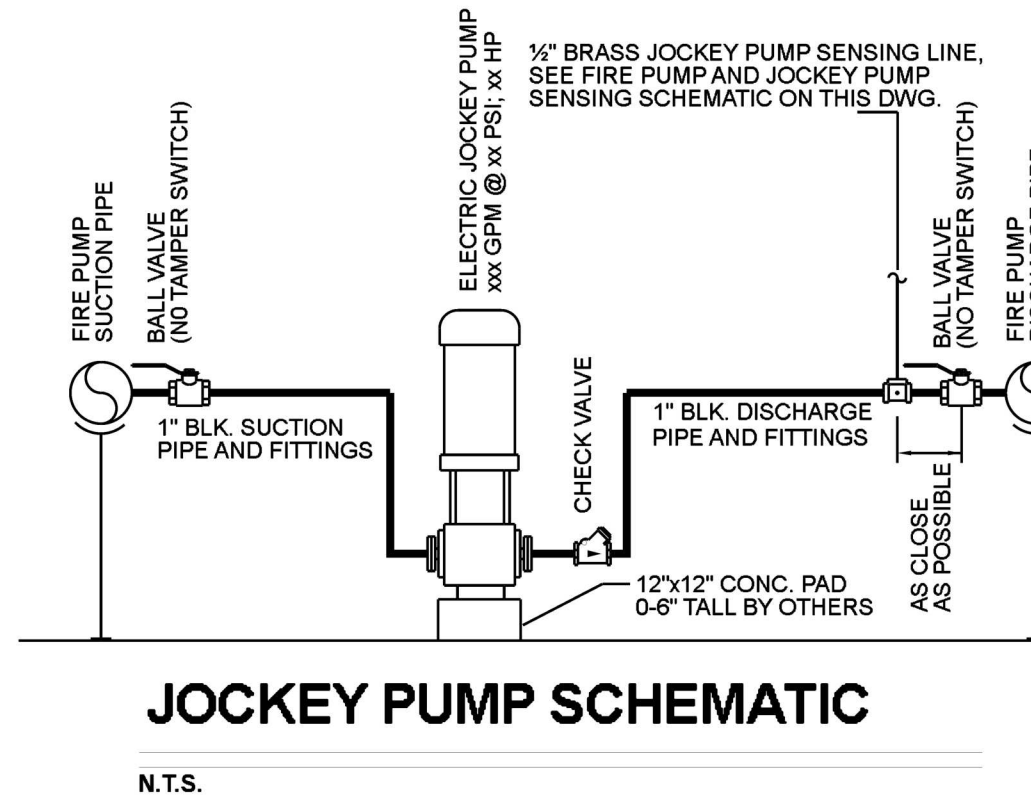
FIRE PUMP CONTROLLER:
SHALL BE WIRED FOR MANUAL SHUTDOWN. FIRE PUMP SHALL BE MONITORED FOR THE FOLLOWING CONDITIONS: FIRE PUMP OR MOTOR RUNNING, LOSS OF PHASE, PHASE REVERSAL.

FIRE PUMP ROOM MATERIAL LIST	
TAG No.	COMPONENT
①	10" FLANGE (SUPPLY FROM CITY)
②	10" TEE
③	8" BUTTERFLY VALVE - SUPERVISED NORMALLY OPEN
④	8" CHECK VALVE
⑤	10" GRV-GRV OS&Y GATE VALVE (w/ TAMPER)
⑥	10x8 FIRE PUMP - 1500gpm @ 75psi
⑦	125hp ELECTRIC MOTOR
⑧	10x8 GRV-GRV CONCENTRIC REDUCER
⑨	8" PIPE STAND
⑩	8" BUTTERFLY VALVE - SUPERVISED NORMALLY CLOSED
⑪	8 x 2 1/2 6 WAY TEST HEADER
⑫	8x6 CONCENTRIC REDUCER
⑬	4" CHECK VALVE
⑭	5x4x30" STORZ FDC
⑮	1.5hp JOCKEY PUMP ASSEMBLY (15gpm @ 85psi)
⑯	FIRE PUMP CONTROLLER
⑰	JOCKEY PUMP CONTROLLER
⑱	SPARE HEAD BOX
⑲	HORN & STROBE LIGHT
⑳	AUXILIARY DRAIN
㉑	1" JOCKEY PUMP PIPE OUTLET
㉒	6" UMC w/ FLOW SWITCH, PRESSURE GAUGE, 2" MAIN DRAIN, PRESSURE RELIEF VALVE CHECK VALVE, AND BUTTERFLY VALVE
㉓	8" UMC w/ FLOW SWITCH, PRESSURE GAUGE, 2" MAIN DRAIN, PRESSURE RELIEF VALVE CHECK VALVE, AND BUTTERFLY VALVE



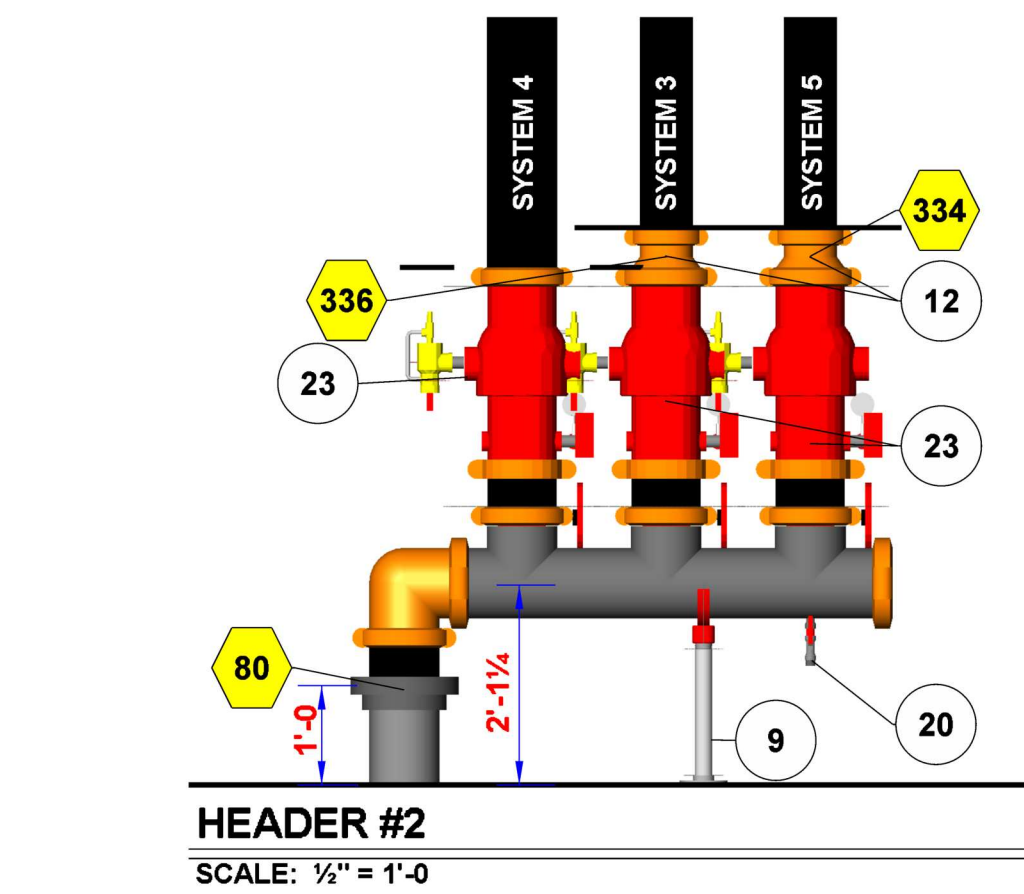
FIRE PUMP AND JOCKEY PUMP SENSING LINE SCHEMATIC

N.T.S.

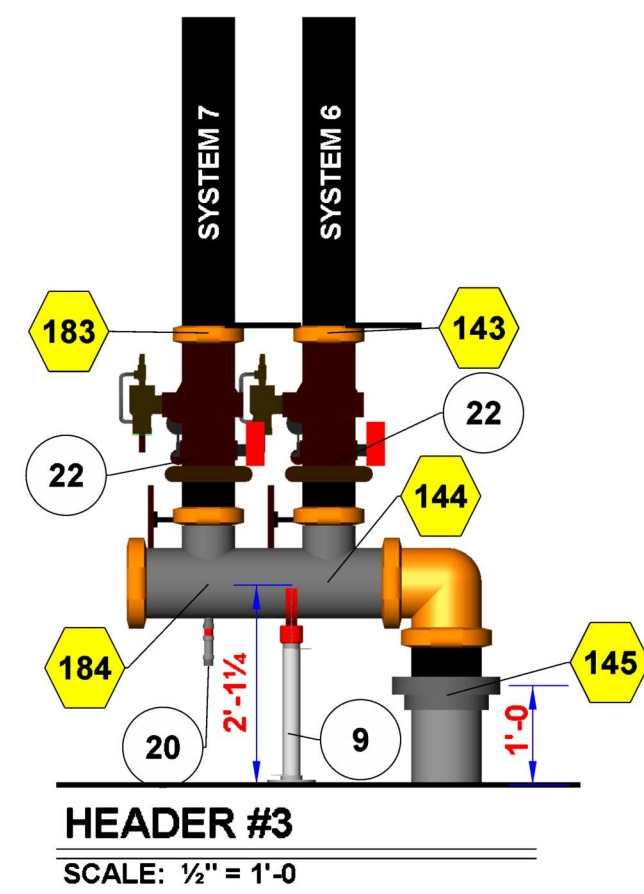


JOCKEY PUMP SCHEMATIC

N.T.S.

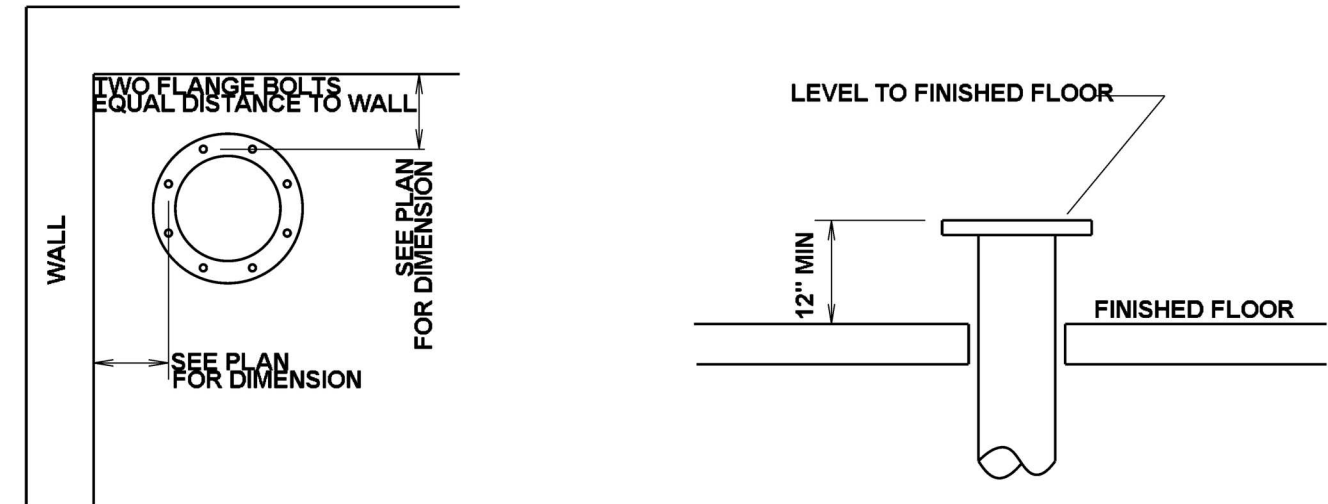


HEADER #2
SCALE: 1/2" = 1'-0"

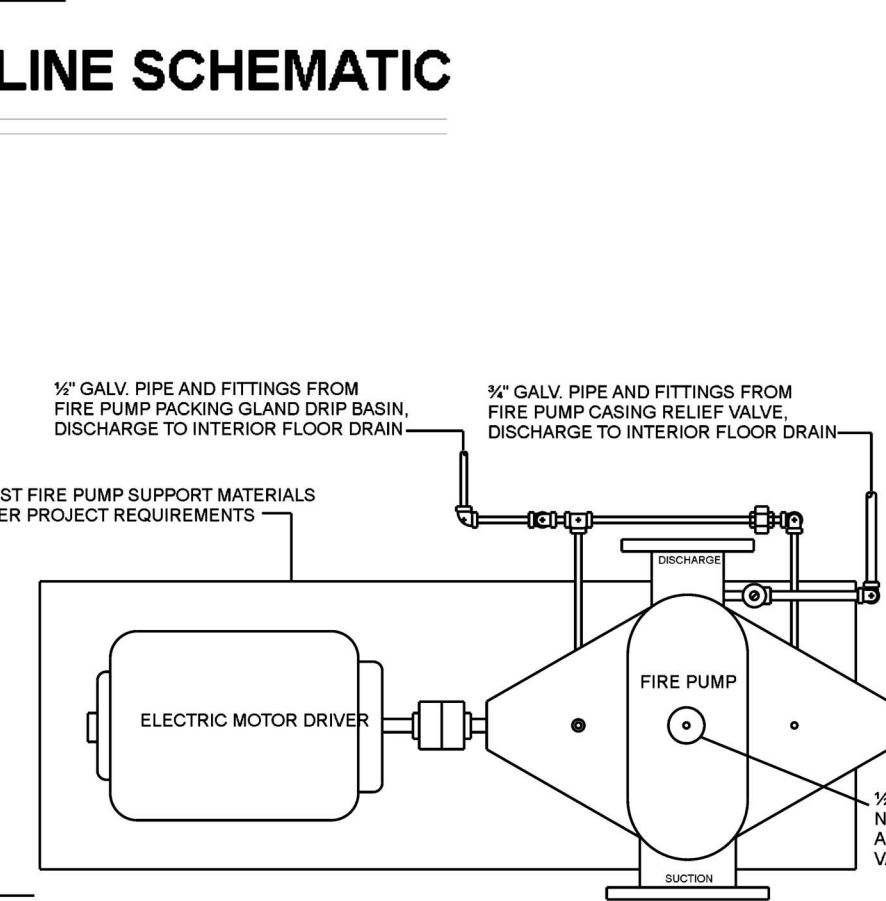


HEADER #3
SCALE: 1/2" = 1'-0"

NOTE: ALL FIRE PROTECTION PIPING STUB-UPS WHETHER INSIDE OR OUTSIDE A BUILDING (INCLUDING PUMP ROOMS), SHALL BE INSTALLED UTILIZING THE "2-HOLE METHOD" ON ALL FLANGES. THE FLANGE SHALL BE INSTALLED WITH THE BOLT HOLES ALIGNED SO THAT FITTING, VALVES, AND EQUIPMENT ARE IN A SQUARE ALIGNMENT WITH ADJACENT WALLS AND FLOOR.

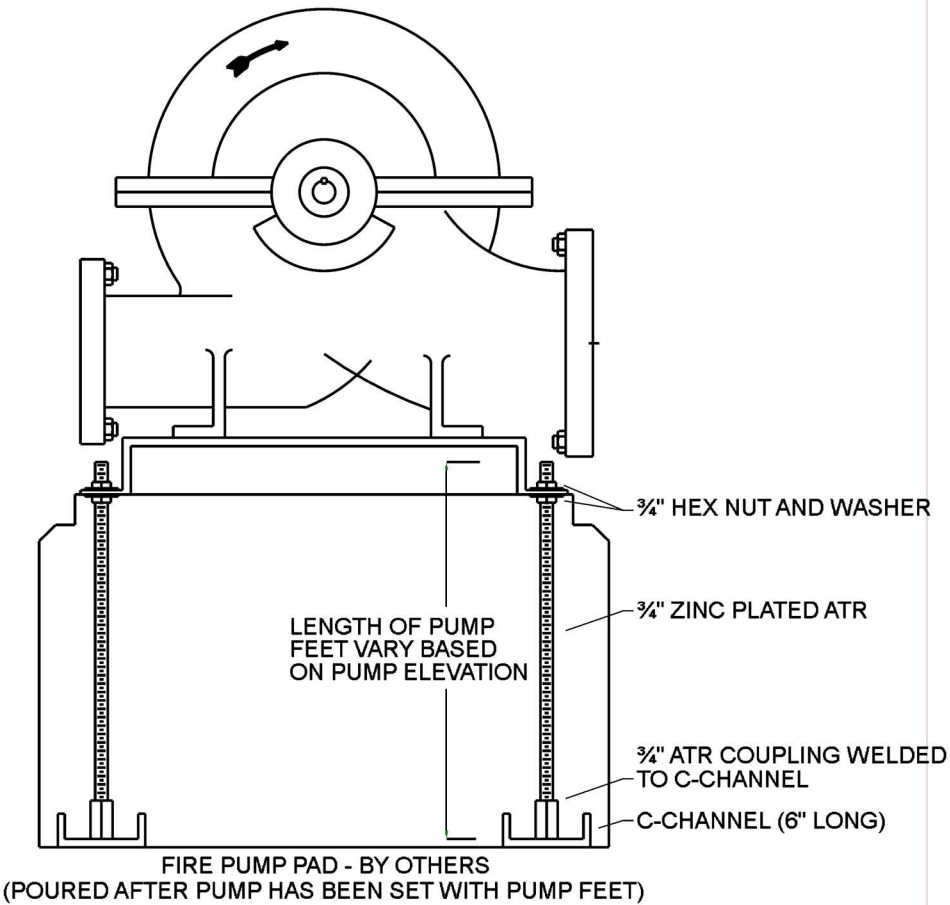


INCOMING FIRE PROTECTION SUPPLY DETAIL
NOT TO SCALE



ELECTRIC FIRE PUMP SCHEMATIC

N.T.S.



PUMP FEET DETAIL

N.T.S.

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PROJECT INFORMATION
**LEE'S SUMMIT LOGISTICS
BUILDING C LOT 2**
NW CORNER OF
NE TUDOR RD & MAIN ST
LEE'S SUMMIT, MO 64086

ISSUE DATES

PERMIT SET 8-11-22

REVISION #1 - UNDERGROUND CHANGE 3-10-23

FP 3.0