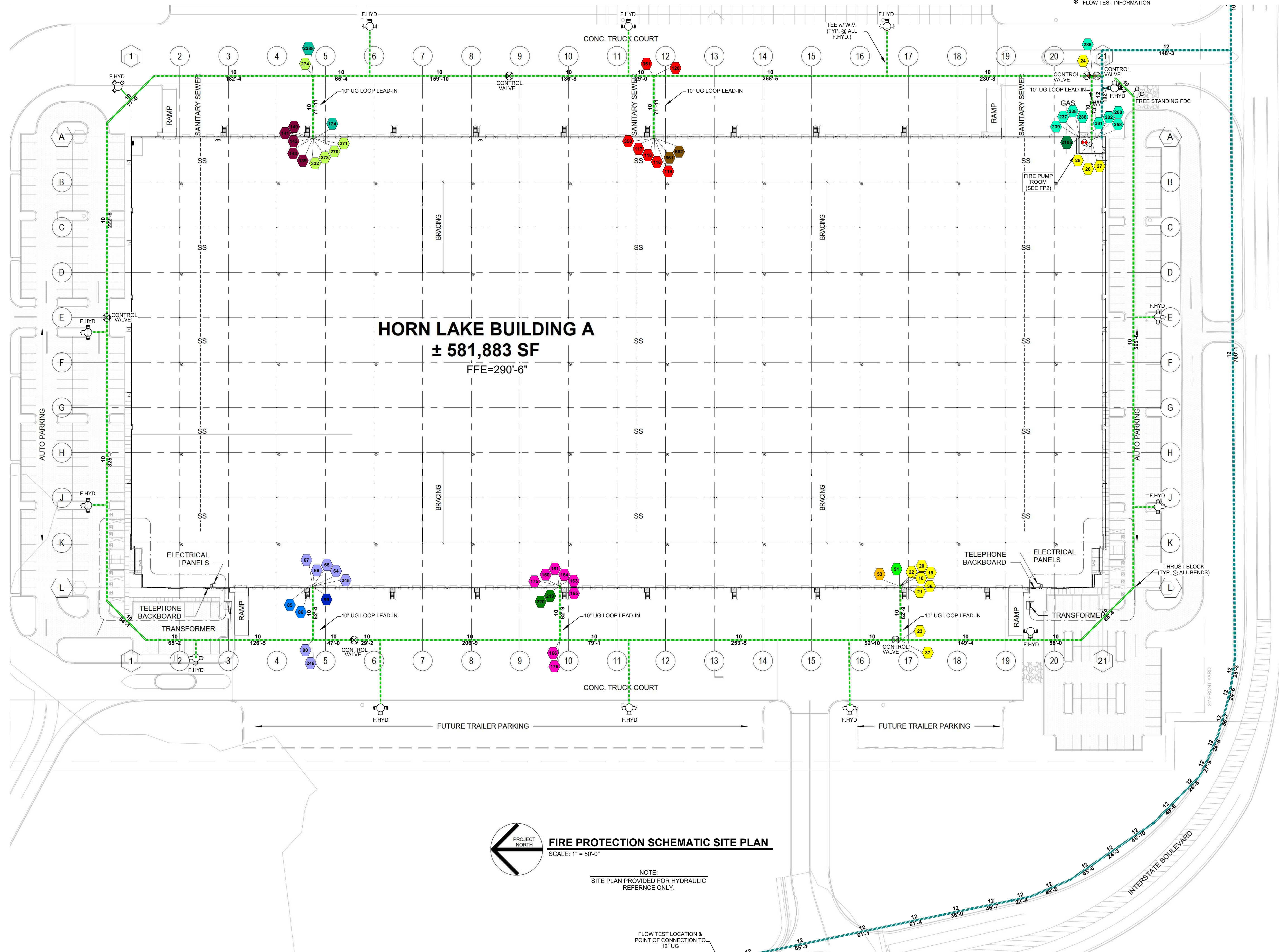


**A BUILDING SECTION**  
SCALE: 1/4" = 1'-0"

FLOW TEST INFO:  
STATIC = 75 PSI  
RESID = 57 PSI  
FLOW = 4359 GPM  
\* FLOW TEST INFORMATION

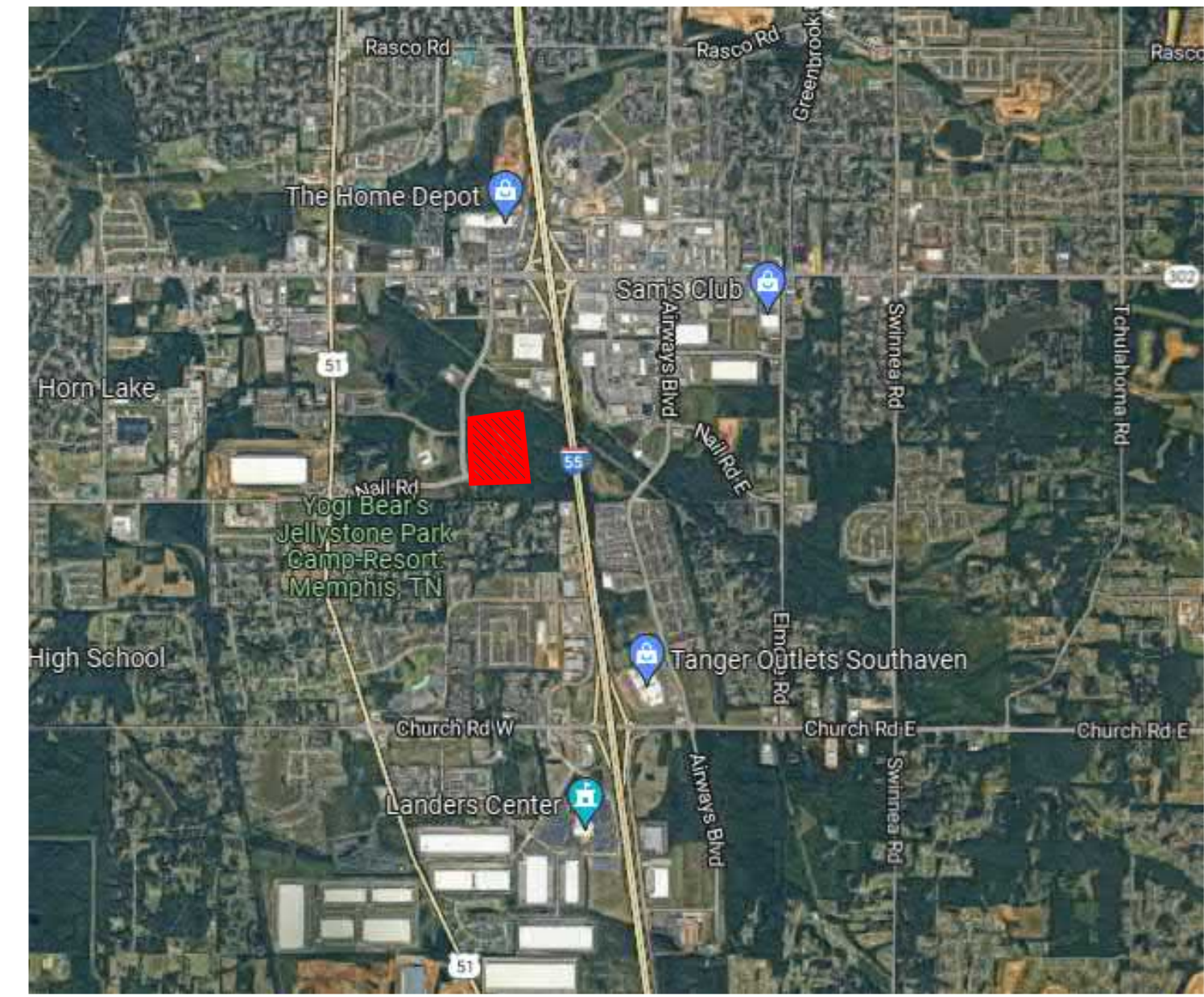


**HORN LAKE BUILDING A**  
± 581,883 SF  
FFE=290'-6"

**FIRE PROTECTION SCHEMATIC SITE PLAN**  
SCALE: 1" = 50'-0"

NOTE:  
SITE PLAN PROVIDED FOR HYDRAULIC  
REFERENCE ONLY.

FLOW TEST LOCATION &  
POINT OF CONNECTION TO  
12" UG



**VICINITY MAP**  
NTS  
NORTH

No.	Date	By	Revision
0	---	---	---
1	---	---	---
2	---	---	---
3	---	---	---
4	---	---	---
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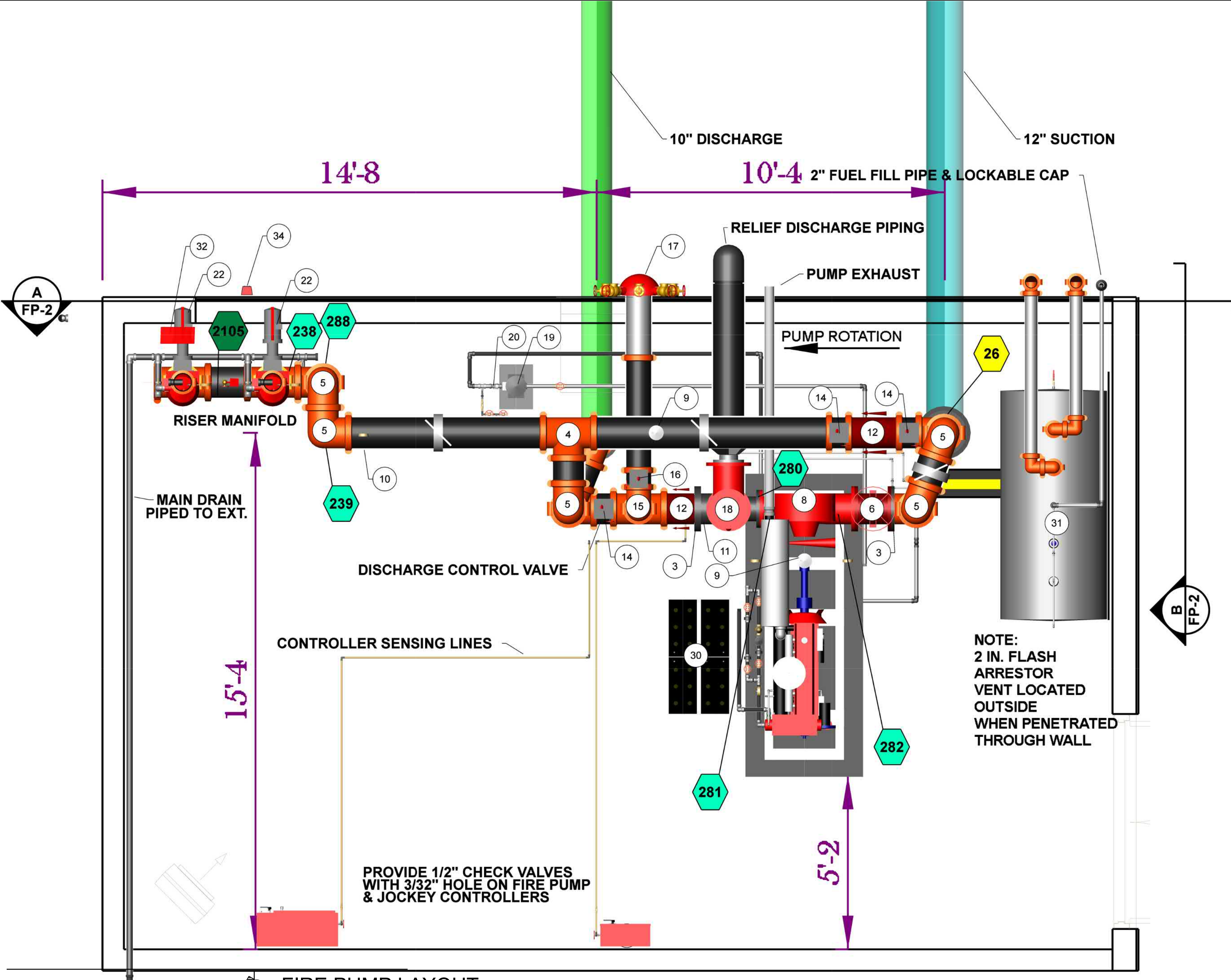
**FIRE PROTECTION - FIRE ALARM**

Date: 03/09/23  
Designed: S.C.H. | Checked: D.S.

**FIRE PROTECTION PLANS**

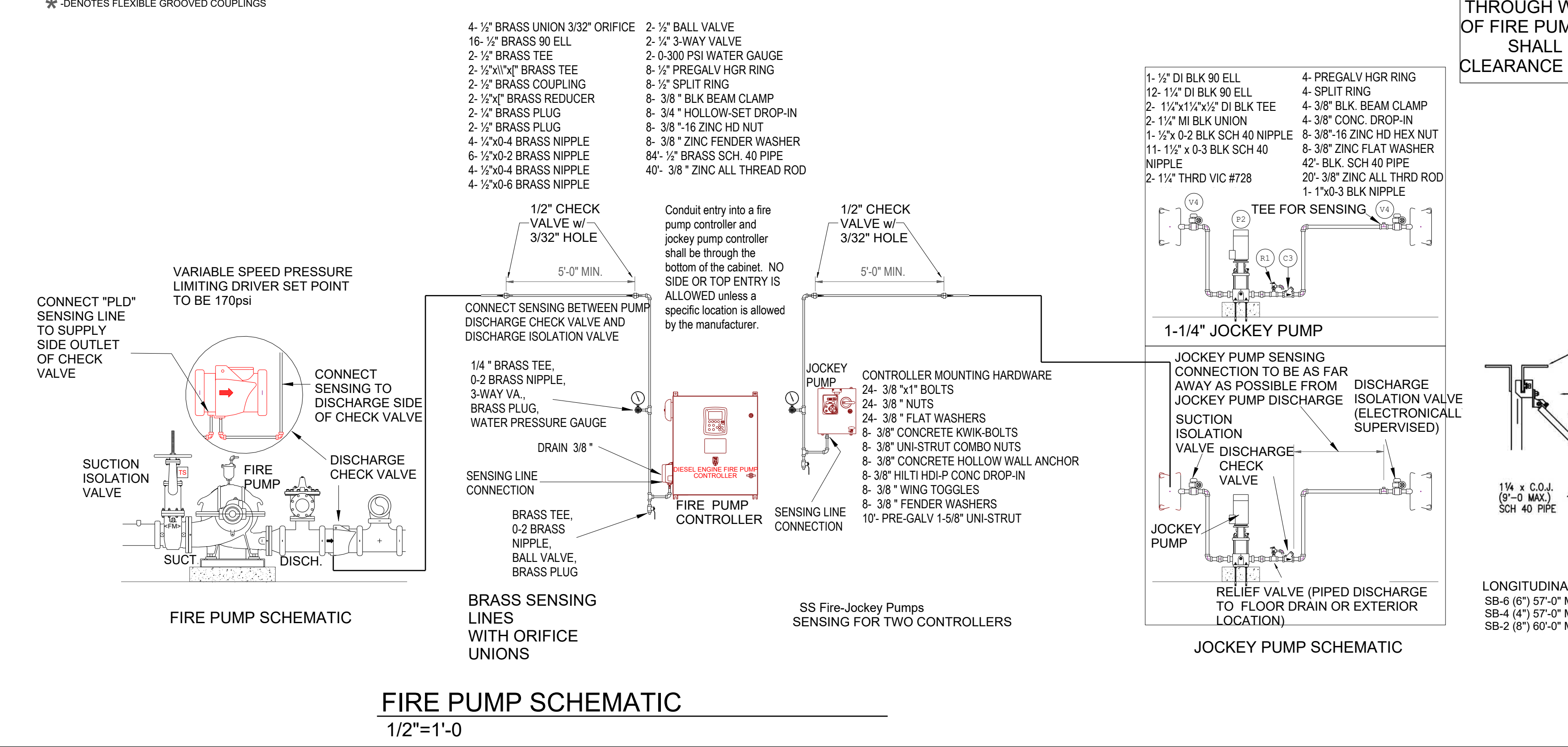
**HORN LAKE BUILDING 'A'**

Drawing: **FP-1**

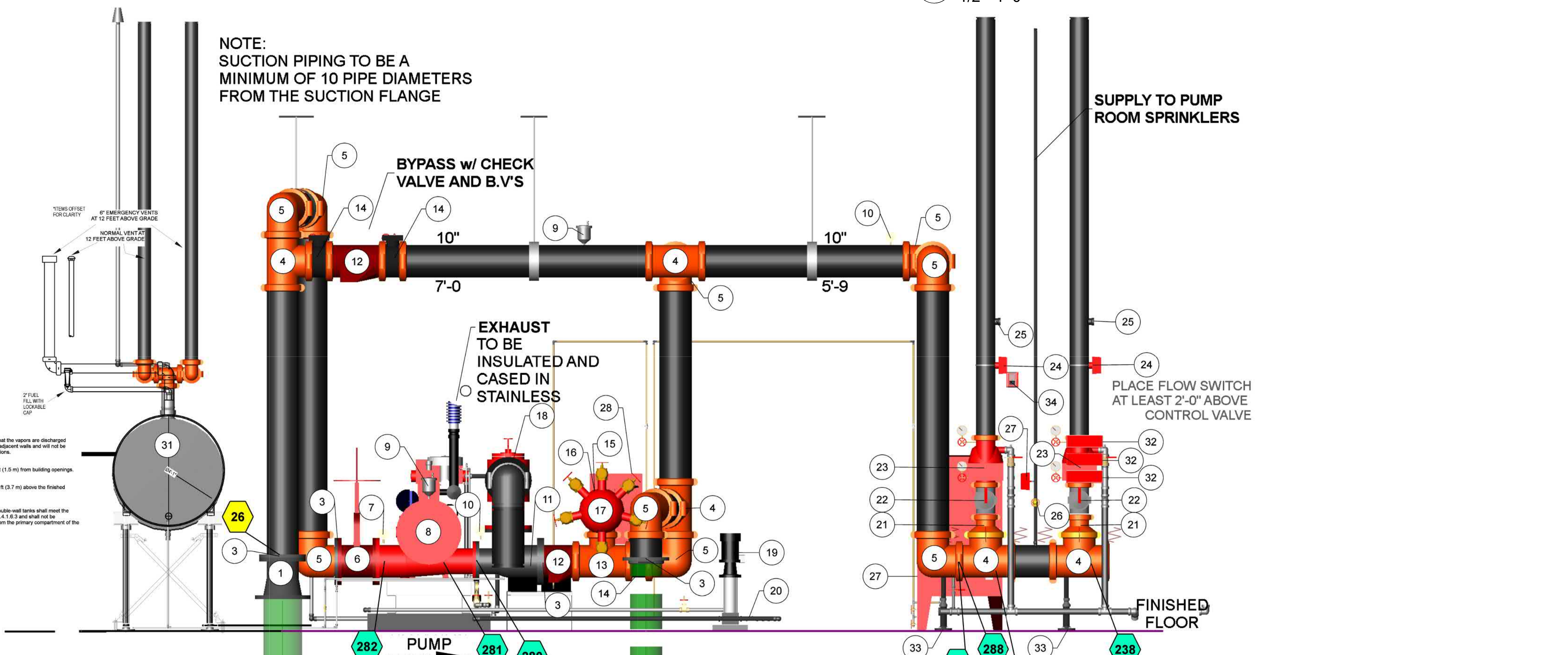
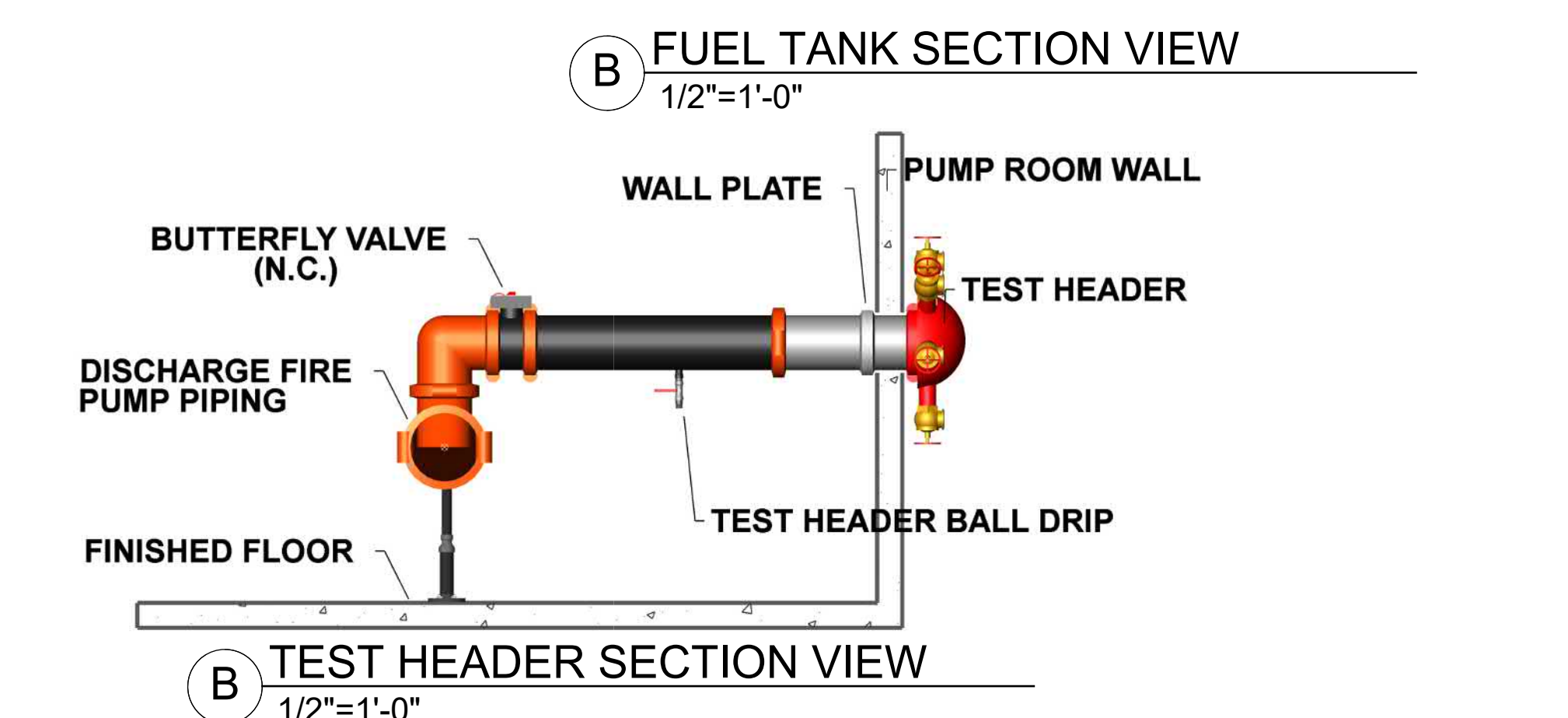
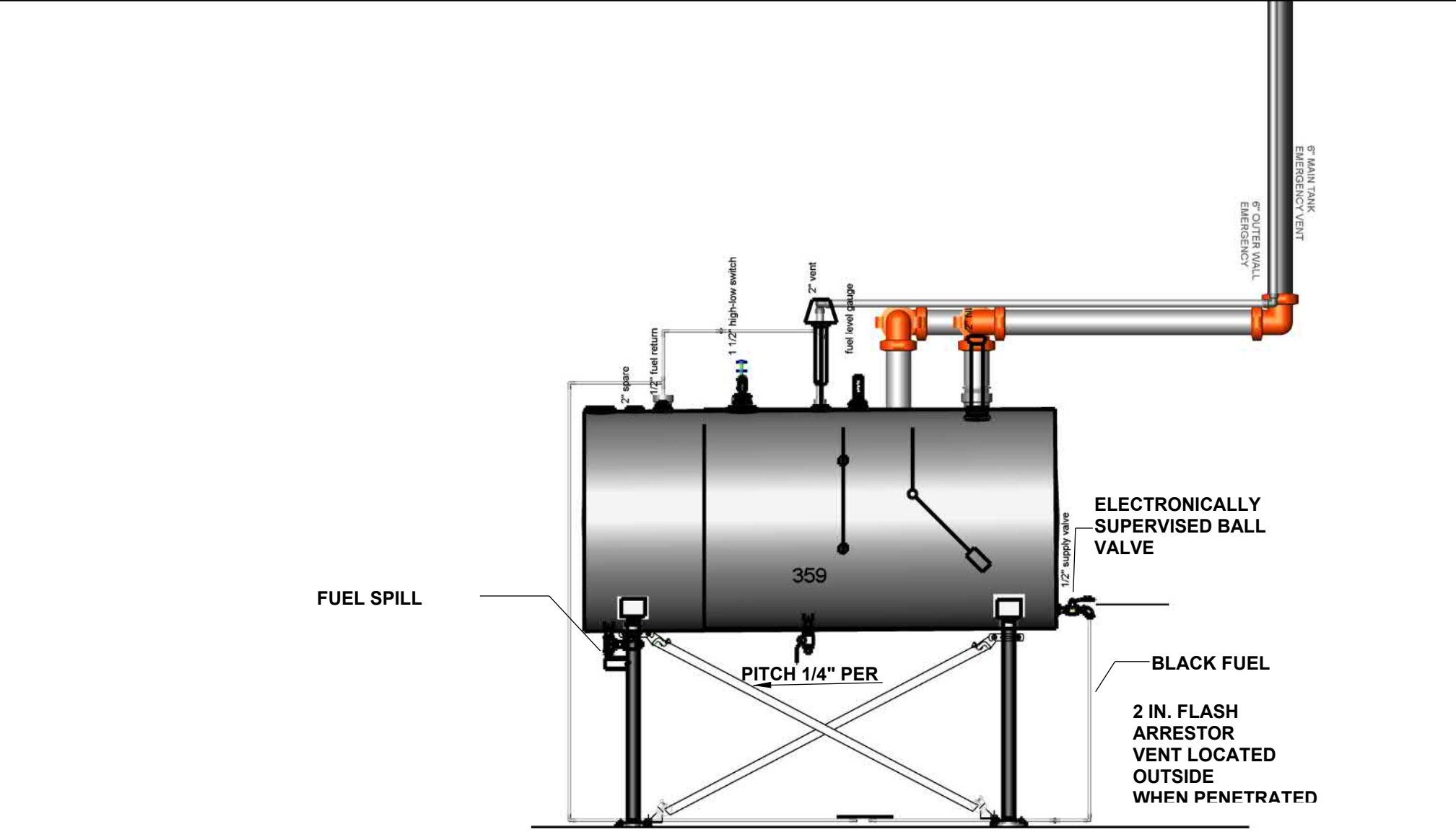
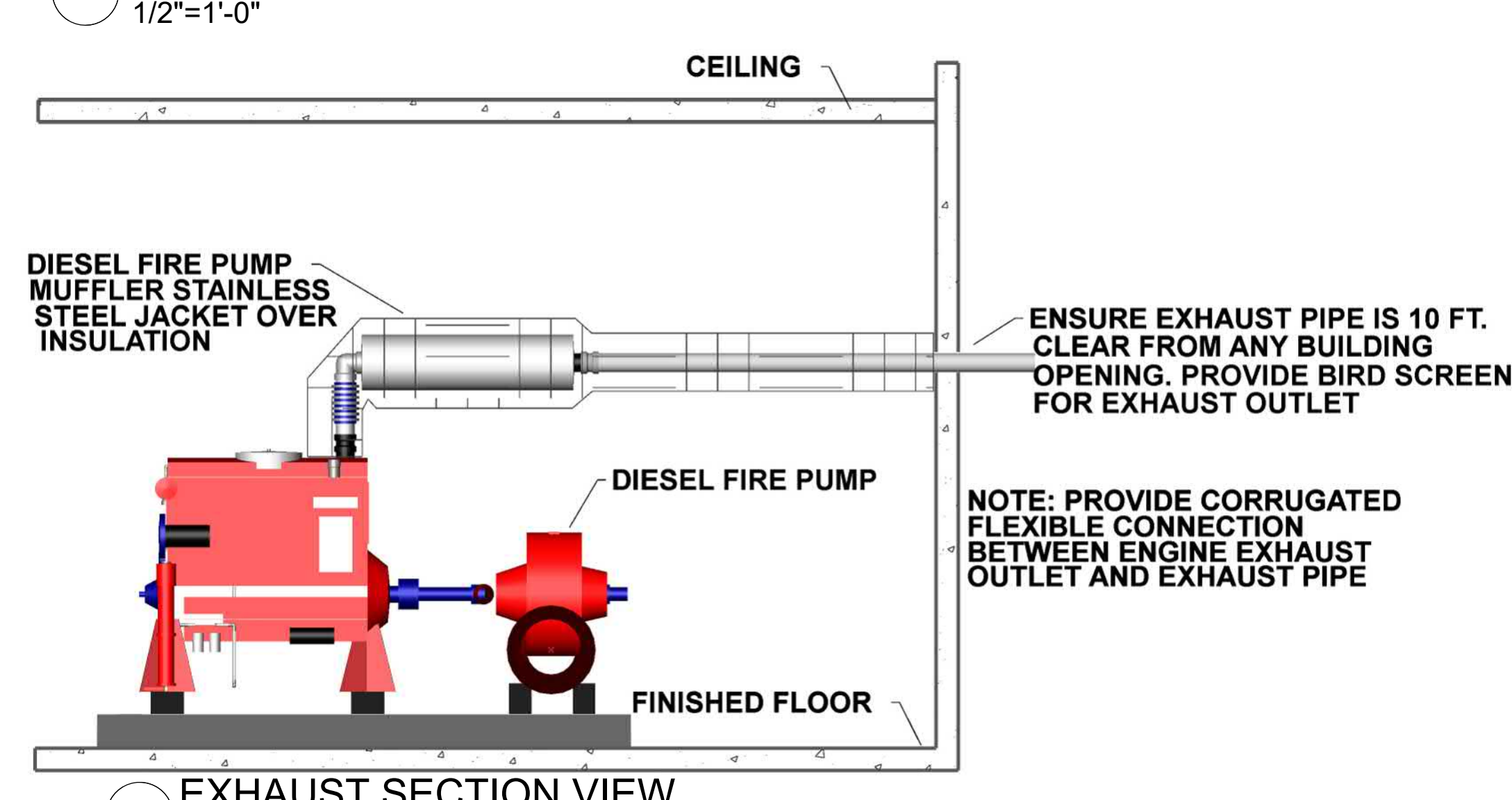
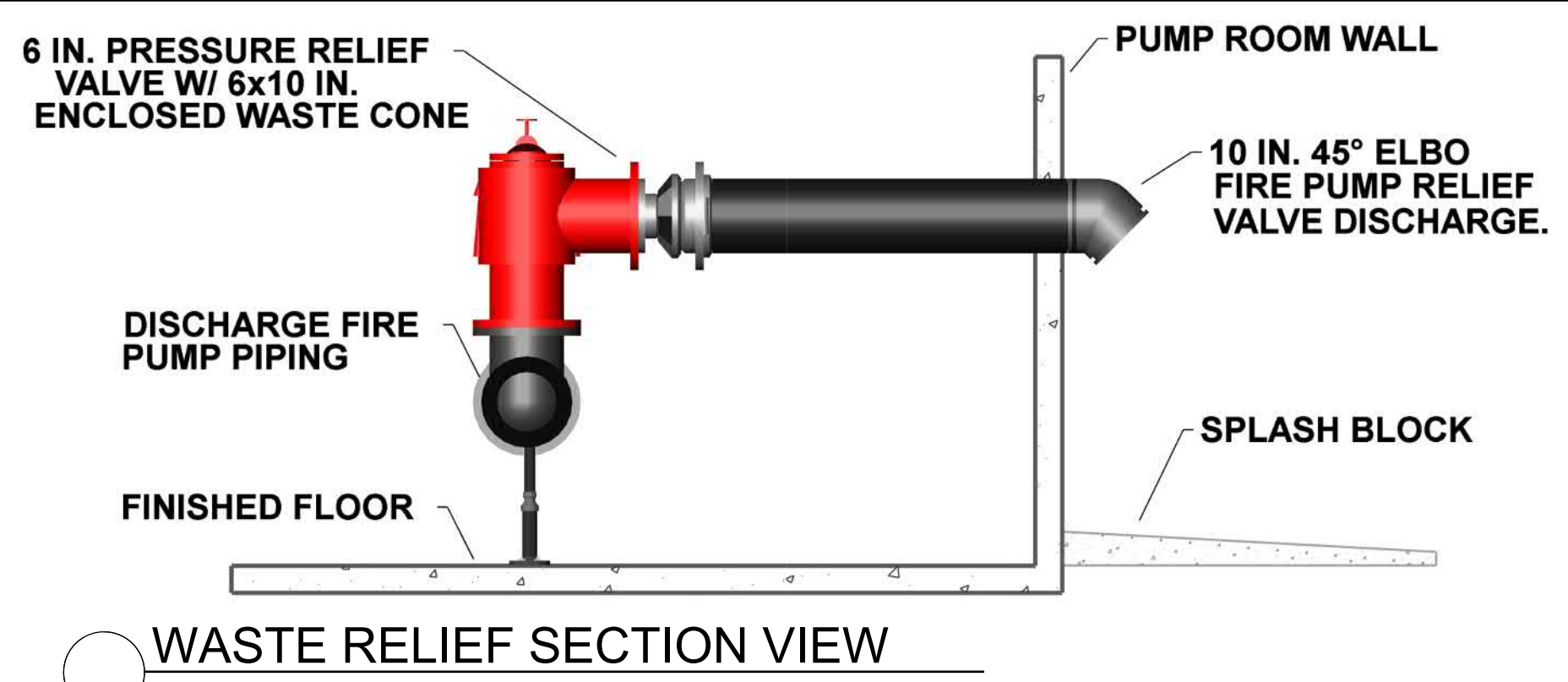


**FIRE PUMP LAYOUT**  
1/2"=1'-0"

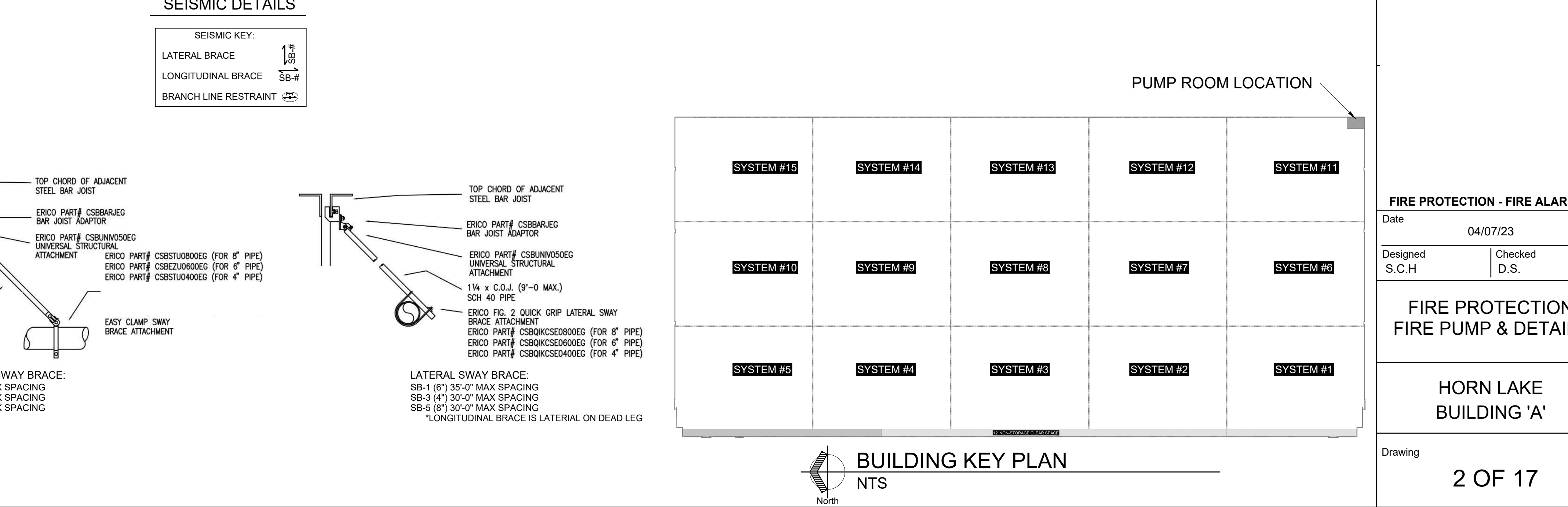
- PUMP LEGEND**
- 1 12" x 10" FLANGED CONCENTRIC REDUCER
  - 2 NOT USED
  - 3 10" VICTAULIC STYLE 743 GRV-FLANGE ADAPTER
  - 4 10" GROOVED TEE VICTAULIC MOD.20
  - 5 10" GROOVED 90° ELL "FIRELOCK"
  - 6 10" OS&Y VALVE w/ SYSTEM SENSOR OS&Y2 TAMPER SWITCH
  - 7 SUCTION GAUGE AND COCK VALVE
  - 8 PEERLESS PUMP, 10A8, MODEL 8AEP16, 2000 GPM AT 136 PSI DIESEL DRIVEN PUMP W/ PLD
  - 9 AUTO AIR RELEASE
  - 10 DISCHARGE GAUGE AND COCK VALVE
  - 11 10" x 8" x 10" FLANGED REDUCING TEE
  - 12 CHECK VALVES (4 REQ'D)-S-0 APART (MIN)
  - 13 10" x 10" x 8" GROOVED REDUCING TEE
  - 14 10" GROOVED BUTTERFLY VA. w/ T.S. - GRU/LOCK SERIES 7700FP (S REQ'D)
  - 15 8" GROOVED 90° ELL "FIRELOCK"
  - 16 10" GROOVED BUTTERFLY VA. w/ T.S. - NORMALLY CLOSED
  - 17 10" TEST HEADER W/ (6) 2" ANGLE TEST VALVES w/ CAPS & CHAINS
  - 18 6"x10" WASTE CONE
  - 19 1/2" x 1/2" JOCKEY PUMP
  - 20 GRUNDFOS MOD. CR 3-8-A-B-A-E-HQOE
  - 21 1- SCREWED CHECK VA.
  - 22 10" x 8" GROOVED CONCENTRIC REDUCER
  - 23 NOT USED
  - 24 10" VICTAULIC STYLE 743 GRV-FLANGE ADAPTER
  - 25 10" GROOVED TEE VICTAULIC MOD.20
  - 26 10" GROOVED 90° ELL "FIRELOCK"
  - 27 10" OS&Y VALVE w/ SYSTEM SENSOR OS&Y2 TAMPER SWITCH
  - 28 SUCTION GAUGE AND COCK VALVE
  - 29 PEERLESS PUMP, 10A8, MODEL 8AEP16, 2000 GPM AT 136 PSI DIESEL DRIVEN PUMP W/ PLD
  - 30 AUTO AIR RELEASE
  - 31 DISCHARGE GAUGE AND COCK VALVE
  - 32 10" x 8" x 10" FLANGED REDUCING TEE
  - 33 CHECK VALVES (4 REQ'D)-S-0 APART (MIN)
  - 34 10" x 10" x 8" GROOVED REDUCING TEE
  - 35 10" GROOVED BUTTERFLY VA. w/ T.S. - GRU/LOCK SERIES 7700FP (S REQ'D)
  - 36 8" GROOVED 90° ELL "FIRELOCK"
  - 37 10" GROOVED BUTTERFLY VA. w/ T.S. - NORMALLY CLOSED
  - 38 10" TEST HEADER W/ (6) 2" ANGLE TEST VALVES w/ CAPS & CHAINS
  - 39 6"x10" WASTE CONE
  - 40 1/2" x 1/2" JOCKEY PUMP
  - 41 GRUNDFOS MOD. CR 3-8-A-B-A-E-HQOE
  - 42 1- SCREWED CHECK VA.

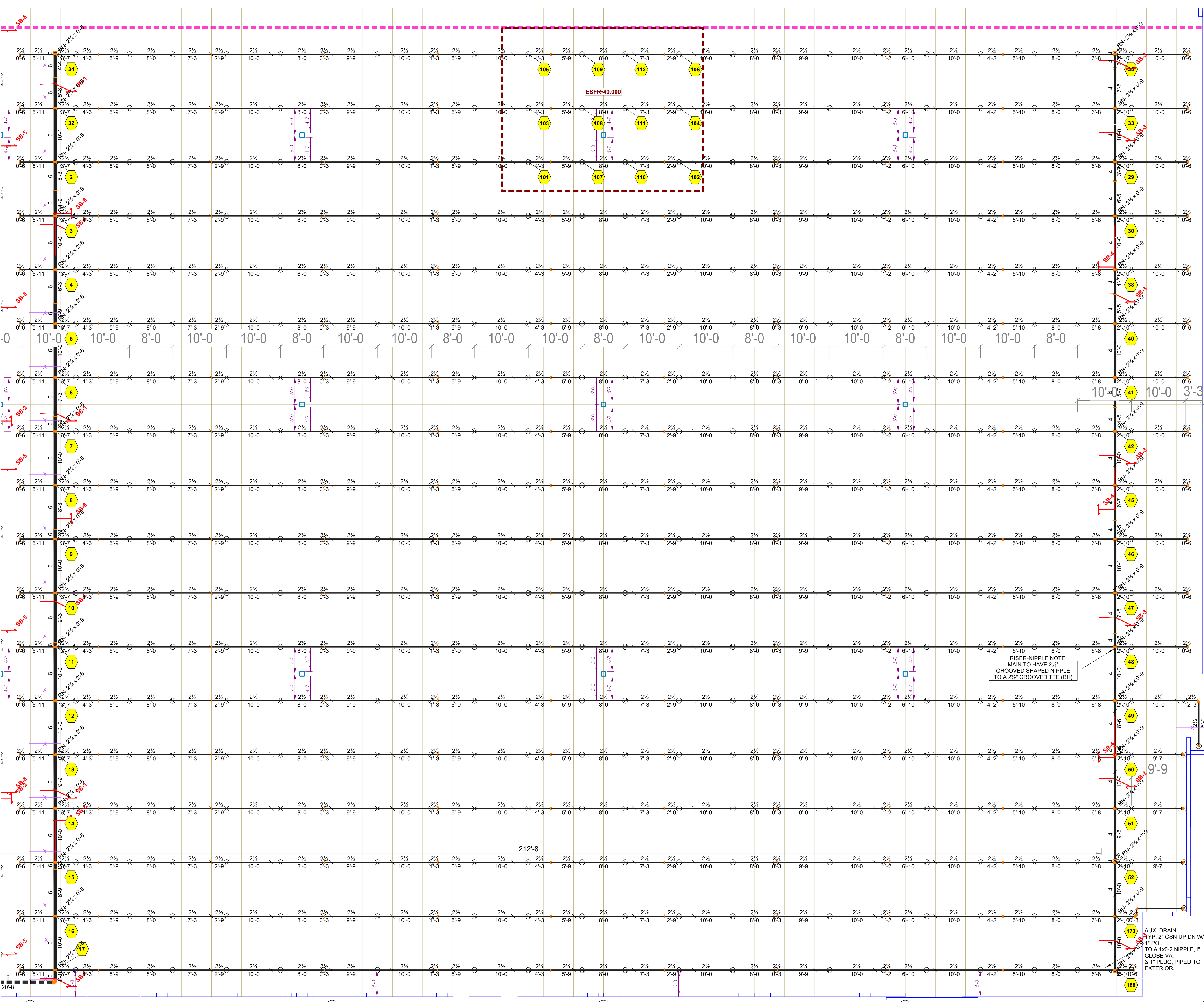


**FIRE PUMP SCHEMATIC**  
1/2"=1'-0"



**FIRE PUMP SECTION VIEW**  
1/2"=1'-0"



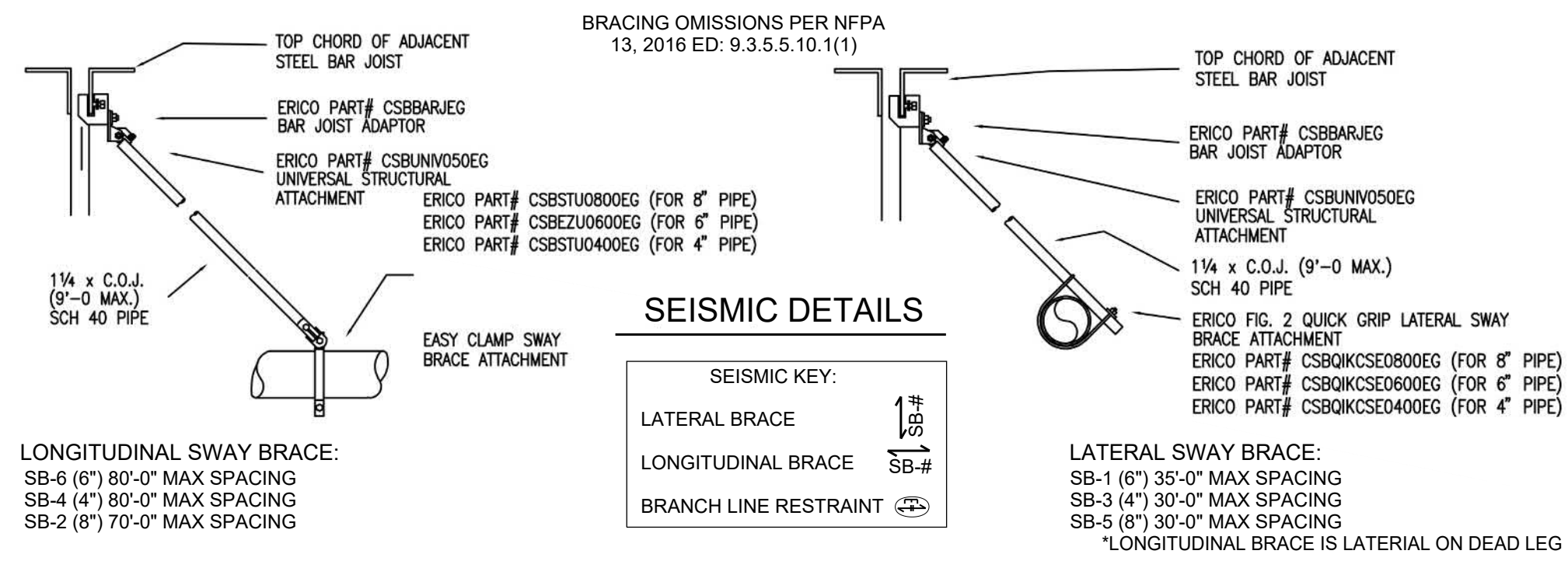


**FIRE SPRINKLER PLAN - SYSTEM #1**  
1/8"=1'-0"

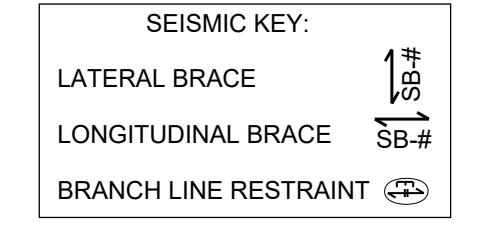
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
⊗	Viking	VK510	ESFR	432	25.2	Pendent	1"	Fast	Brass	165°F	
				<b>Total = 432</b>							

**GENERAL NOTES:**

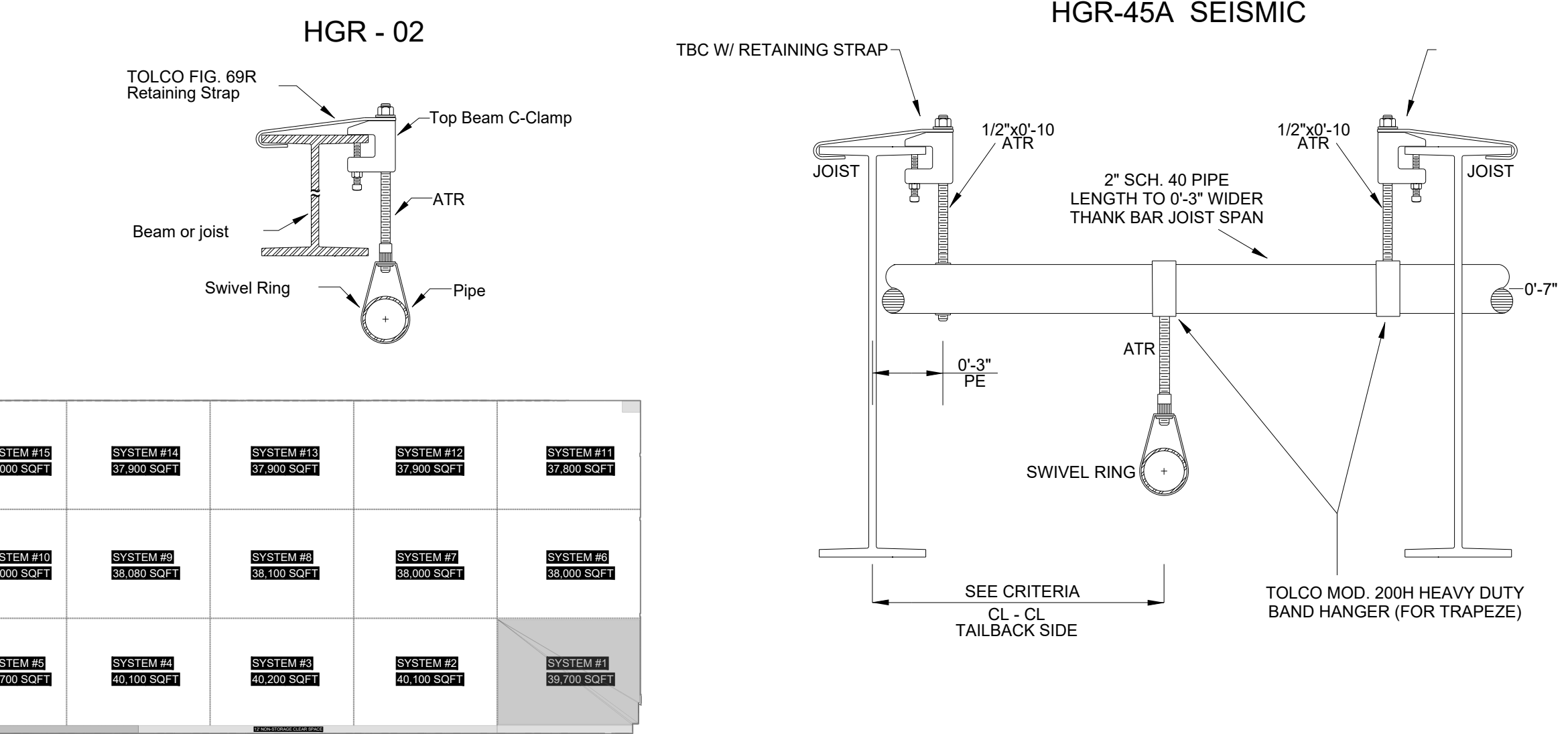
- SPRINKLER SYSTEMS TO BE SUPPLIED BY A NEW 2000 GPM @ 136 PSI DIESEL MOTOR DRIVEN PUMP LOCATED IN PUMP ROOM. (SEE SHEET #2 FOR FIRE PUMP DRAWING)
- ALL NEW 4", 6" & 8" PIPE TO BE SCH. 10 BLACK STEEL WITH ROLLED GROOVED ENDS.
- ALL NEW 3" AND SMALLER PIPE TO BE SCH. 7 BLACK STEEL WITH ROLLED GROOVED ENDS.
- ALL NEW COUPLINGS TO BE VICTAULIC STYLE 009 U.N.O.
- ALL NEW FITTINGS TO BE VICTAULIC FIRELOCK, U.N.O.
- HANGING AND BRACING PER NFPA 13 (2019 ED.).
- ALL NEW HANGERS WILL BE HGR 02, U.N.O.
- WHERE ANY PIPE PASSES THROUGH WALLS, CEILINGS, OR FLOORS OF FIRE PUMP ROOM ENCLOSURE, HOLES SHALL BE SIZED TO PROVIDE 4" CLEARANCE FOR THE PENETRATING PIPE.
- ESFR HAZARD DESCRIPTION: ON-FLOOR (PALLETIZED/SOLID-PILED) AND RACK STORAGE OF ORDINARY CLASS I-IV COMBUSTIBLES AND CARTONED UNEXPANDED GROUP A PLASTICS



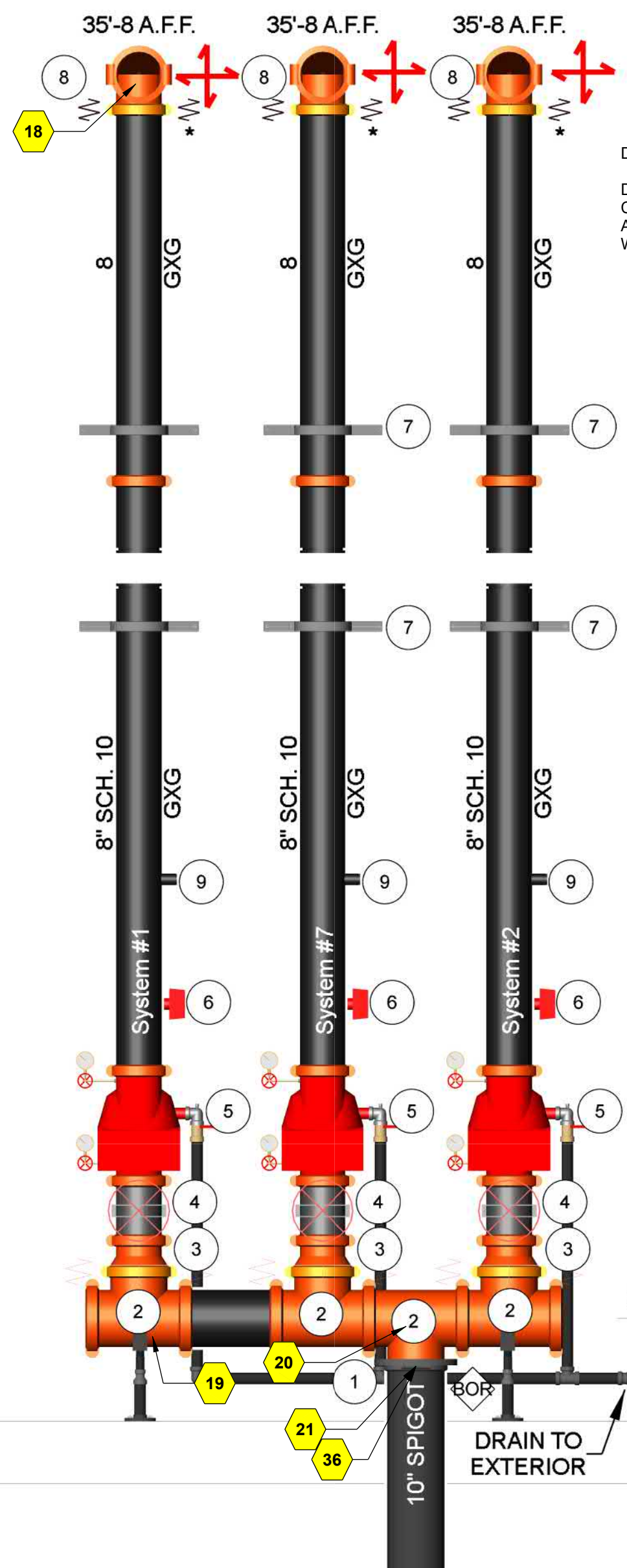
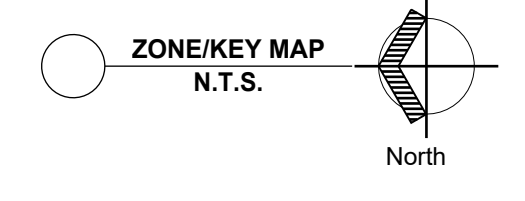
**SEISMIC KEY:**



**LATERAL SWAY BRACE:**  
SB-4 (8") 30'-0" MAX SPACING  
SB-3 (4") 30'-0" MAX SPACING  
SB-5 (8") 30'-0" MAX SPACING  
LONGITUDINAL BRACE IS LATERAL ON DEAD LEG



SYSTEM 1	SYSTEM 2	SYSTEM 3	SYSTEM 4	SYSTEM 5
SYSTEM 6	SYSTEM 7	SYSTEM 8	SYSTEM 9	SYSTEM 10
SYSTEM 11	SYSTEM 12	SYSTEM 13	SYSTEM 14	SYSTEM 15
SYSTEM 16	SYSTEM 17	SYSTEM 18	SYSTEM 19	SYSTEM 20



**DRAIN NOTE:**  
DRAIN LINE PIPING TO BE COORDINATED IN THE FIELD. ALL GRID SYSTEMS TO BE PROVIDED WITH LOW-POINT AUXILIARY DRAIN.

**RISER LEGEND**

- 1" GROOVED FLANGE
- 1" GROOVED TEE
- 10x8 / 10x6 GROOVED CONCENTRIC REDUCER
- 8" / 6" GATE VA-G-G W/ WALL POST INDICATOR & POTTER ROEMER MOD 6223 TAMPER SWITCH
- 8" / 6" VIKING MOD E1 (G-G) EASY RISER CHECK VA W/ PRESSURE RELIEF TRIM KIT & NORMALLY CLOSED DRAIN
- 8" / 6" RISER CLAMP W/ (2) 2.5 ATR, (4) NUTS/WASHERS & (2) HLT1 INSERTS
- 8" / 6" GROOVED 90° "FIRELOCK"
- INSPECTOR'S TEST CONNECTION W/ FIELD ADJUSTABLE PRESSURE RELIEF VALVE SET @ 185 PS (TYP)
- 10" FIRESTAND
- 10" GROOVED CAP
- ELECTRIC BELL (NOT SHOWN)
- ★ DENOTES FLEX GROOVED COUPLING

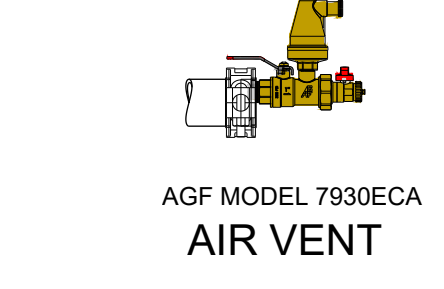
Hydraulic Information	
Remote Area 1	
OCCUPANCY CLASSIFICATION	ESFR
MIN. END HEAD PRESSURE	40,000 (ESFR)
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	12
K-FACTOR	25.2
TOTAL WATER REQUIRED	2186.99
TOTAL PRESSURE REQUIRED	4.166
SAFETY MARGIN (psi)	+76.141 (108.8%)

\*REFER TO SHEETS, 1 & 2 OF 17, FOR HYDRAULIC NODE TAG CONTINUATION

**RISER DETAIL SYSTEMS #1, #7 & #2**

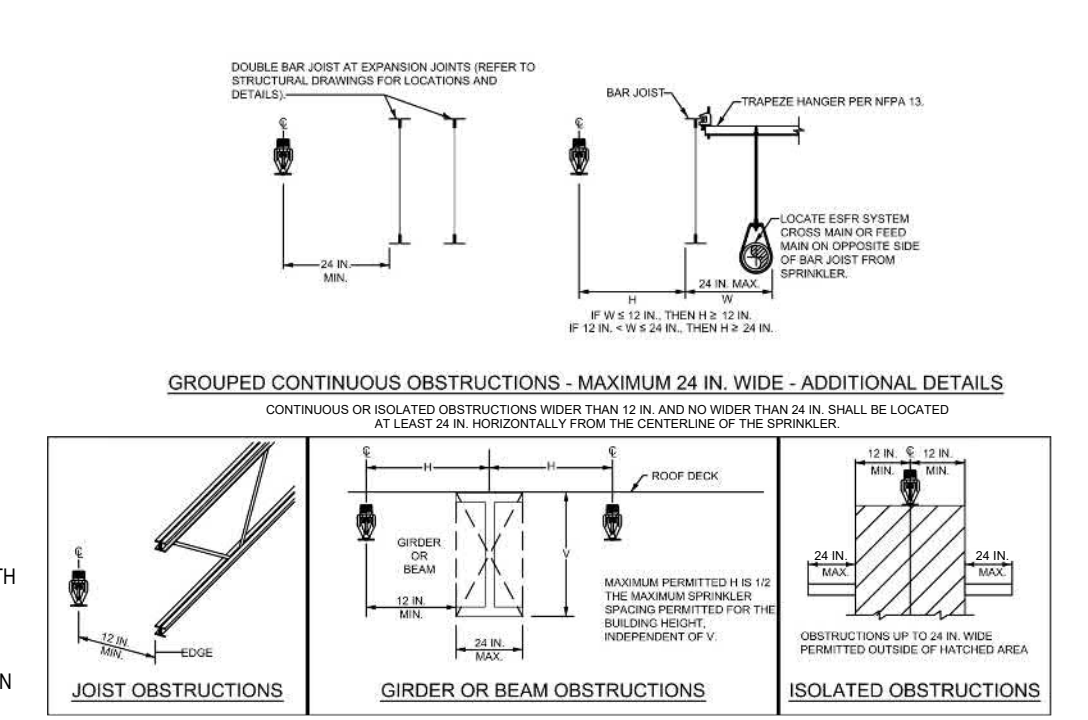
**PIPE CENTERLINES**

- 2" & 2 1/2" PIPE - 7" CL
- 4" PIPE - 15" CL
- 6" & 8" PIPE - 34 1/2" CL



**E.S.F.R. OBSTRUCTION NOTES:**

- E.S.F.R. SPRINKLER LOCATIONS SHALL BE COORDINATED WITH ROOF FRAMING PLANS WHICH DETAIL LOCATIONS OF BAR JOISTS, BEAMS, GRIDDERS, HORIZONTAL BRIDGING, UPLIFT BRACING AND OTHER COMPONENTS OF THE ROOF FRAMING. SHOULD THE LOCATION FOR ANY ROOF FRAMING SYSTEM COMPONENT BE REVISED, THE REVISED LOCATION MUST BE IN A MANNER TO MAINTAIN APPROPRIATE HORIZONTAL DISTANCES FROM E.S.F.R. SPRINKLERS.
- ALL OTHER BUILDING COMPONENTS AT OR NEAR THE CEILING MUST ALSO BE LOCATED IN A MANNER TO MAINTAIN APPROPRIATE HORIZONTAL DISTANCES FROM E.S.F.R. SPRINKLERS. SUCH BUILDING COMPONENTS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO PIPING, CONDUIT, DUCTWORK LIGHTING, ETC.

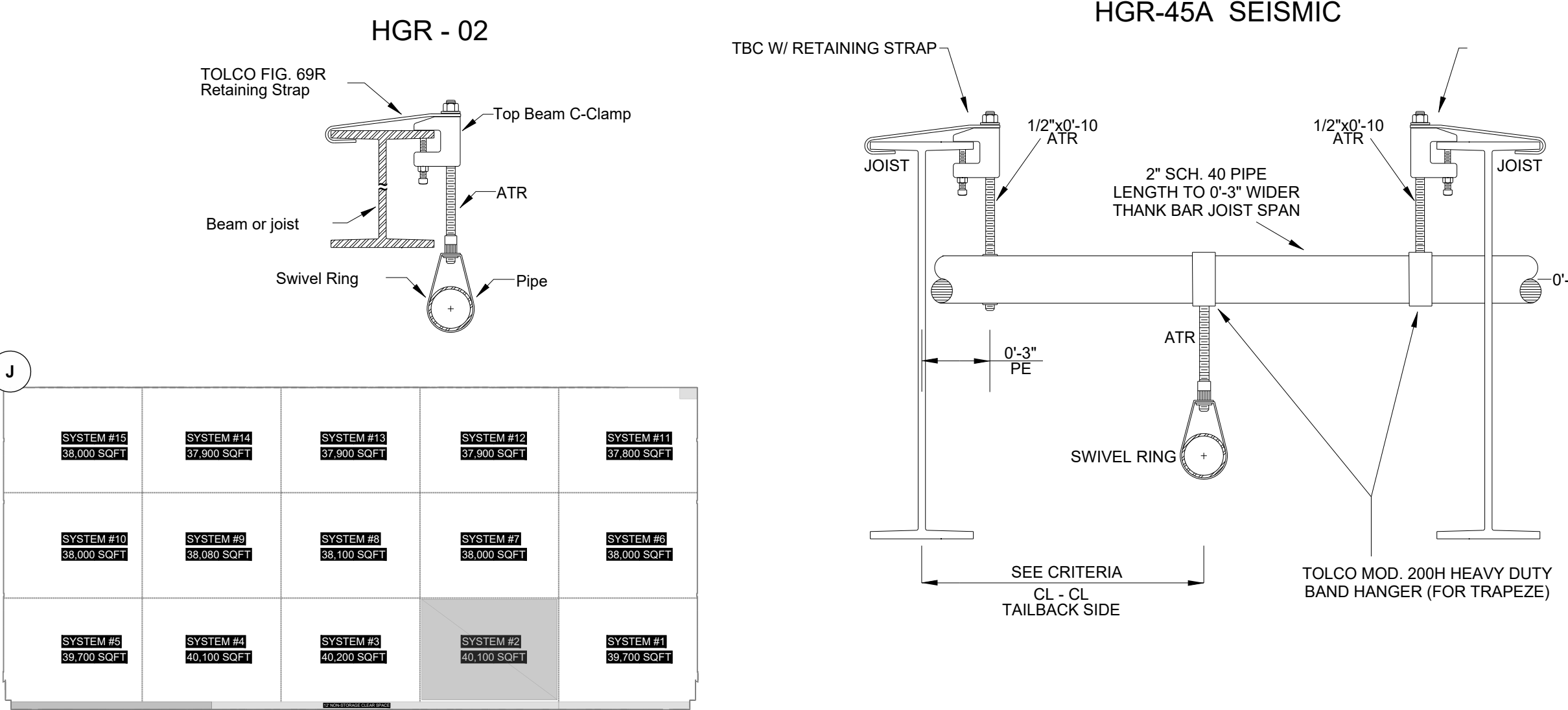
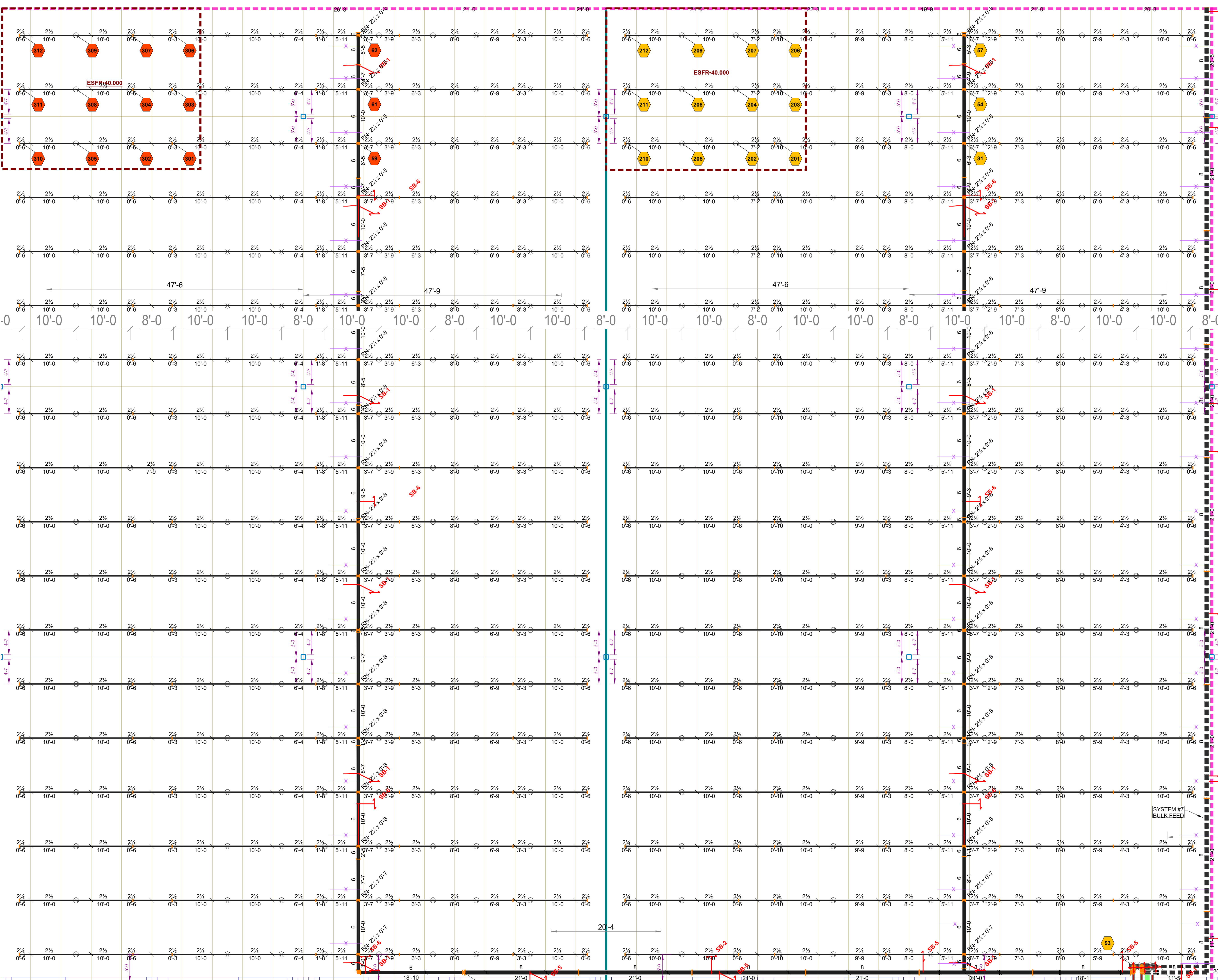


**ESFR SPACING DETAIL NTS**

No.	Date	By	Revision
0	---	---	---
1	---	---	---
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5	---	---	---

FIRE PROTECTION - FIRE ALARM	
Date	04/07/23
Designed S.C.H.	Checked D.S.

**FIRE PROTECTION PLAN**



ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000
ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000
ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000
ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000
ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000	ESFR-40,000



**DRAIN NOTE:**  
DRAIN LINE PIPING TO BE COORDINATED IN THE FIELD. ALL GRID SYSTEMS TO BE PROVIDED WITH LOW-POINT AUXILIARY DRAIN.

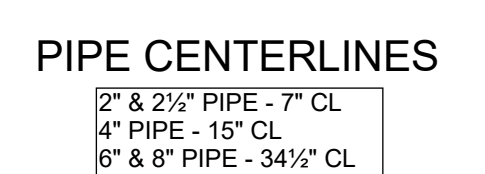
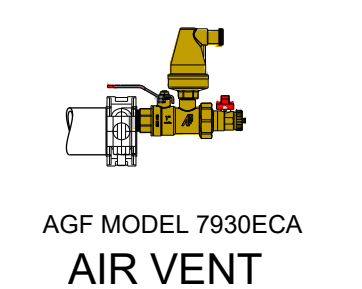
- RISER LEGEND**
- 1 10" GROOVED FLANGE
  - 2 10" GROOVED TEE
  - 3 10x8 10x6 GROOVED CONCENTRIC REDUCER
  - 4 8" 1/2" GATE VALVE G-G W/ WALL POST INDICATOR & POTTER ROEMER MOD 8223 TAMPER SWITCH
  - 5 8" 1/2" VIKING MOD E-1 (G-G) EASY RISER CHECK VALVE W/ PRESSURE RELIEF FROM KIT & NORMALLY CLOSED DRAIN
  - 6 8" 1/2" WATER FLOW SWITCH (WIRED BY OTHER)
  - 7 8" 1/2" RISER CLAMP W/ (2) 3/4" ATR, (4) NUTS/WASHERS & (2) HILT INSERTS
  - 8 8" 1/2" GROOVED 90 "FIRLOCK"
  - 9 INSPECTOR'S TEST CONNECTION W/ FIELD ADJUSTABLE PRESSURE RELIEF VALVE SET @ 185 PSI (TYP)
  - 10 10" PIPESTAND
  - 11 10" GROOVED CAP
  - 12 ELECTRIC BELL (NOT SHOWN)
  - \* DENOTES FLEX GROOVED COUPLING

Hydraulic Information	
Remote Area 2a	
OCCUPANCY CLASSIFICATION	ESFR
MIN. END HEAD PRESSURE	40,000 (ESFR)
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	12
K-FACTOR	25.2
TOTAL WATER REQUIRED	2186.37
TOTAL PRESSURE REQUIRED	34.445
SAFETY MARGIN (psi)	+35.533 (50.8%)

Hydraulic Information	
Remote Area 2b	
OCCUPANCY CLASSIFICATION	ESFR
MIN. END HEAD PRESSURE	40,000 (ESFR)
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	12
K-FACTOR	25.2
TOTAL WATER REQUIRED	2186.37
TOTAL PRESSURE REQUIRED	36.434
SAFETY MARGIN (psi)	+33.544 (47.9%)

\*REFER TO SHEETS, 1 & 2 OF 17, FOR HYDRAULIC NODE TAG CONTINUATION

## RISER DETAIL SYSTEMS #1, #7 & #2



**E.S.F.R. OBSTRUCTION NOTES:**

- E.S.F.R. SPRINKLER LOCATIONS SHALL BE COORDINATED WITH ROOF FRAMING PLANS WHICH DETAIL LOCATIONS OF BAR JOISTS, BEAMS, GRIDDERS, HORIZONTAL BRIDGING, LIFT/BRACING AND OTHER COMPONENTS OF THE ROOF FRAMING. SHOULD THE LOCATION FOR ANY ROOF FRAMING SYSTEM COMPONENT BE REVISED, THE REVISED LOCATION MUST BE IN A MANNER TO MAINTAIN APPROPRIATE HORIZONTAL DISTANCES FROM E.S.F.R. SPRINKLERS.
- ALL OTHER BUILDING COMPONENTS AT OR NEAR THE CEILING MUST ALSO BE LOCATED IN A MANNER TO MAINTAIN APPROPRIATE HORIZONTAL DISTANCES FROM E.S.F.R. SPRINKLERS. SUCH BUILDING COMPONENTS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO PIPING, CONDUIT, DUCTWORK LIGHTING, ETC.

No.	Date	By	Revision
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1	---	---	---
2	---	---	---
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4	---	---	---
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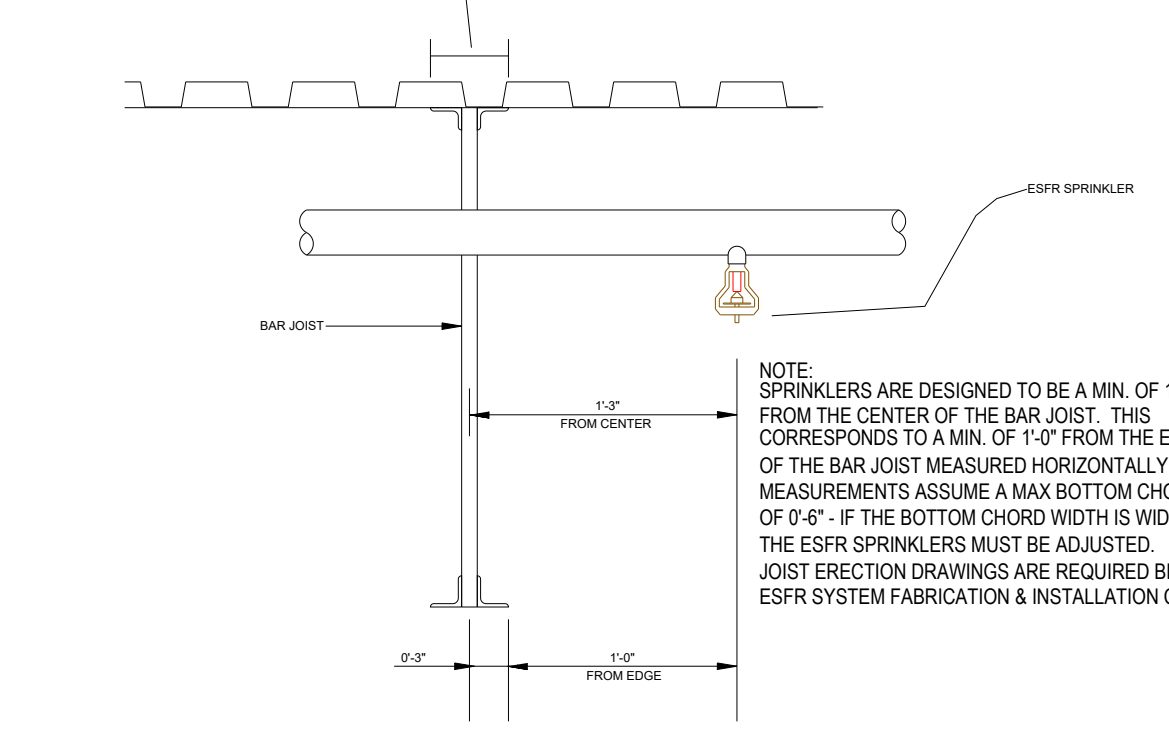
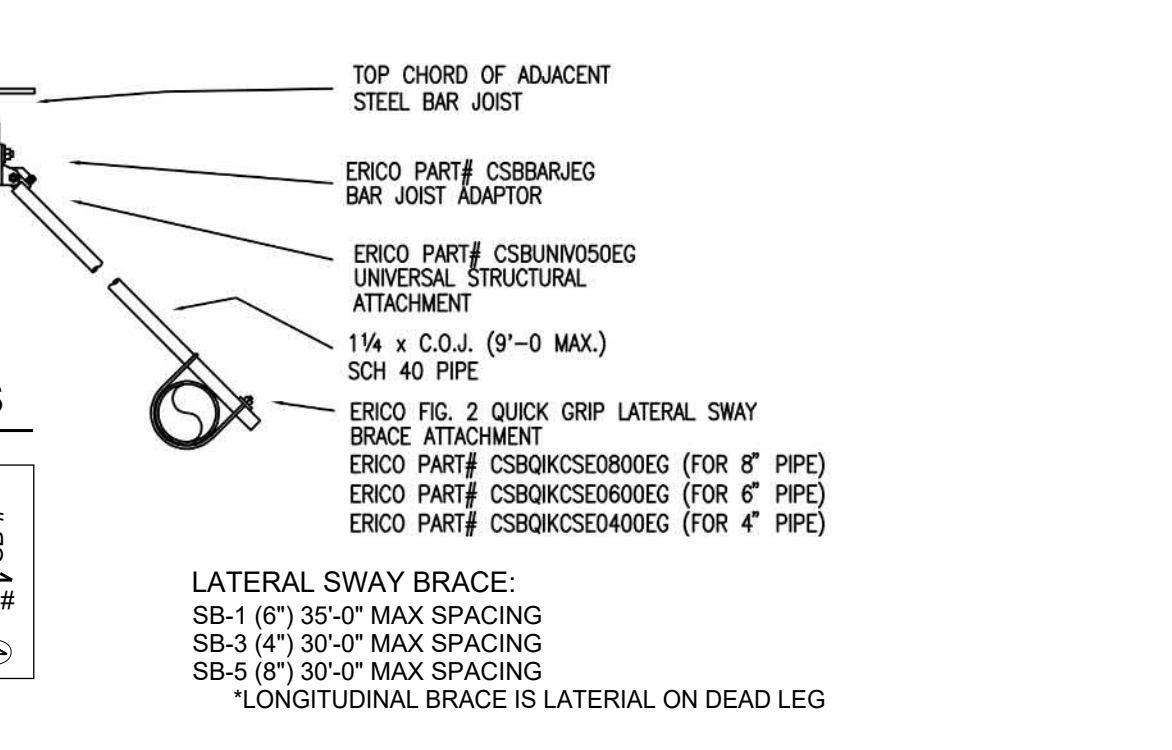
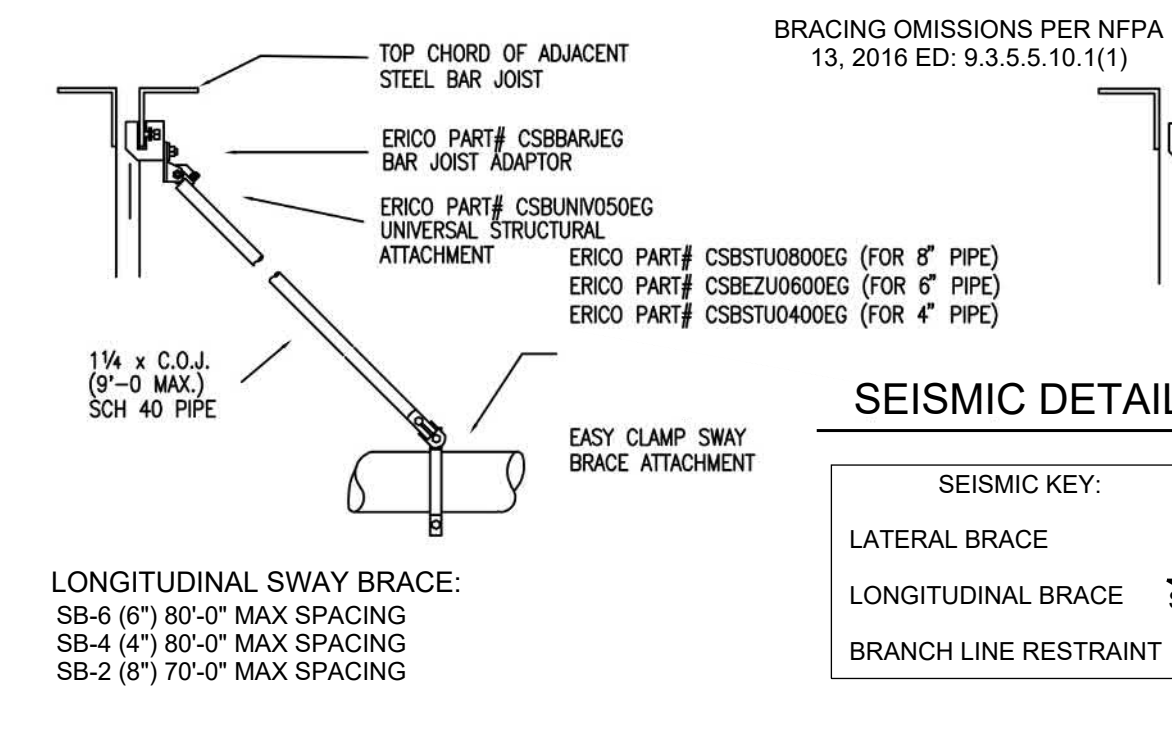
FIRE PROTECTION - FIRE ALARM	
Date	04/07/23
Designed	S.C.H
Checked	D.S.
FIRE PROTECTION PLAN	
HORN LAKE BUILDING 'A'	

## FIRE SPRINKLER PLAN - SYSTEM #2

1/8"=1'-0"

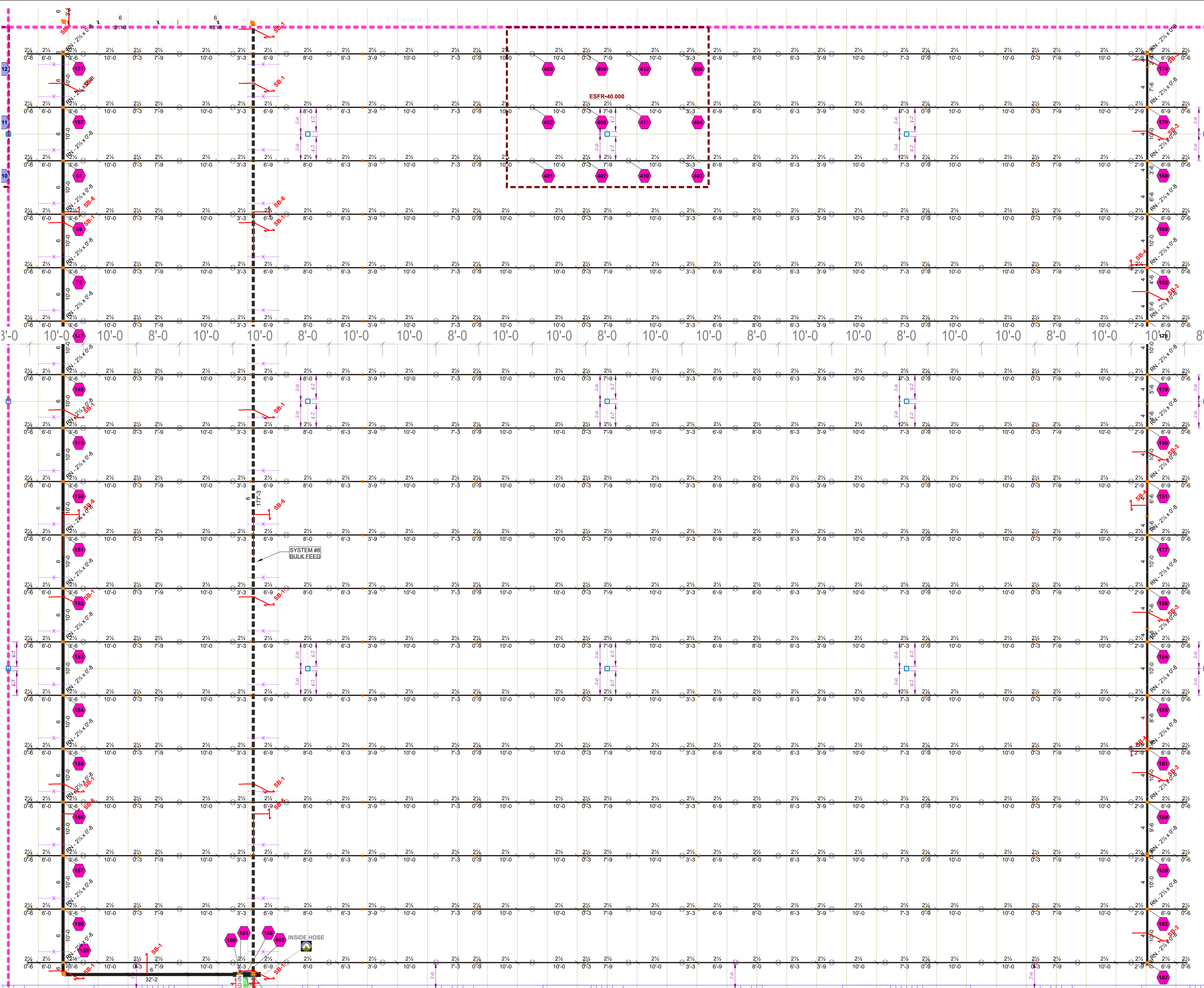
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
⊗	Viking	VK510	ESFR	432	25.2	Pendent	1	Fast	Brass	165 °F	
				Total = 432							

- GENERAL NOTES:**
- SPRINKLER SYSTEMS TO BE SUPPLIED BY A NEW 2000 GPM @ 136 PSI DIESEL MOTOR DRIVEN PUMP LOCATED IN PUMP ROOM. (SEE SHEET #2 FOR FIRE PUMP DRAWING)
  - ALL NEW 4", 6" & 8" PIPE TO BE SCH. 10 BLACK STEEL WITH ROLLED GROOVED ENDS.
  - ALL NEW 3" AND SMALLER PIPE TO BE SCH. 7 BLACK STEEL WITH ROLLED GROOVED ENDS.
  - ALL NEW COUPLINGS TO BE VICTAULIC STYLE 009 U.N.O.
  - ALL NEW FITTINGS TO BE VICTAULIC FIRELOCK, U.N.O..
  - HANGING AND BRACING PER NFPA 13 (2019 ED.).
  - ALL NEW HANGERS WILL BE HGR 02, U.N.O.
  - WHERE ANY PIPE PASSES THROUGH WALLS, CEILING, OR FLOORS OF FIRE PUMP ROOM ENCLOSURE, HOLES SHALL BE SIZED TO PROVIDE 4" CLEARANCE FOR THE PENETRATING PIPE.
  - ESFR HAZARD DESCRIPTION: ON-FLOOR (PALLETIZED/SOLID-PILED) AND RACK STORAGE OF ORDINARY CLASS I-IV COMBUSTIBLES AND CARTONED UNEXPANDED GROUP A PLASTICS



### ESFR SPACING DETAIL

NTS



**FIRE SPRINKLER PLAN - SYSTEM #3**  
1/8" = 1'-0"

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
⊗	Viking	VK510	ESFR	432	25.2	Pendent	1"	Fast	Brass	165°F	
				<b>Total = 432</b>							

**GENERAL NOTES:**

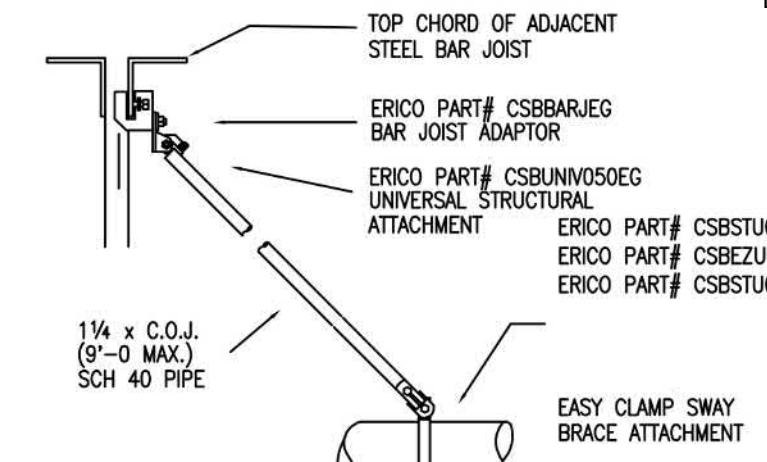
- SPRINKLER SYSTEMS TO BE SUPPLIED BY A NEW 2000 GPM @ 136 PSI DIESEL MOTOR DRIVEN PUMP
- LOCATED IN PUMP ROOM. (SEE SHEET #2 FOR FIRE PUMP DRAWING)  
ALL NEW 4", 6" & 8" PIPE TO BE SCH. 10 BLACK STEEL WITH ROLLED GROOVED ENDS.
- ALL NEW 3" AND SMALLER PIPE TO BE SCH. 7 BLACK STEEL WITH ROLLED GROOVED ENDS.
- ALL NEW COUPLINGS TO BE VICTAULIC STYLE 009 U.N.O.
- ALL NEW FITTINGS TO BE VICTAULIC FIRELOCK, U.N.O.
- HANGING AND BRACING PER NFPA 13 (2019 ED.).
- ALL NEW HANGERS WILL BE HGR 02, U.N.O.
- WHERE ANY PIPE PASSES THROUGH WALLS, CEILINGS, OR FLOORS OF FIRE PUMP ROOM ENCLOSURE, HOLES SHALL BE SIZED TO PROVIDE 4" CLEARANCE FOR THE PENETRATING PIPE.
- ESFR HAZARD DESCRIPTION: ON-FLOOR (PALLETIZED/SOLID-PILED) AND RACK STORAGE OF ORDINARY CLASS I-IV COMBUSTIBLES AND CARTONED UNEXPANDED GROUP A PLASTICS

**PIPE CENTERLINES**

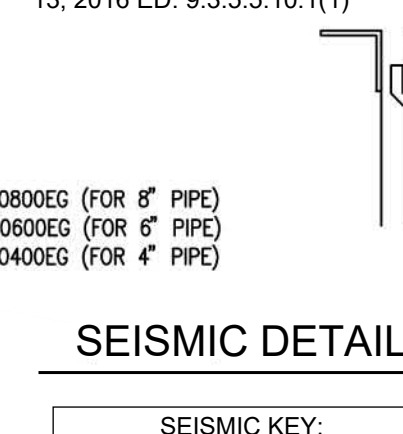
- 2" & 2 1/2" PIPE - 7" CL
- 4" PIPE - 15" CL
- 6" & 8" PIPE - 34 1/2" CL



AGF MODEL 7930ECA  
AIR VENT



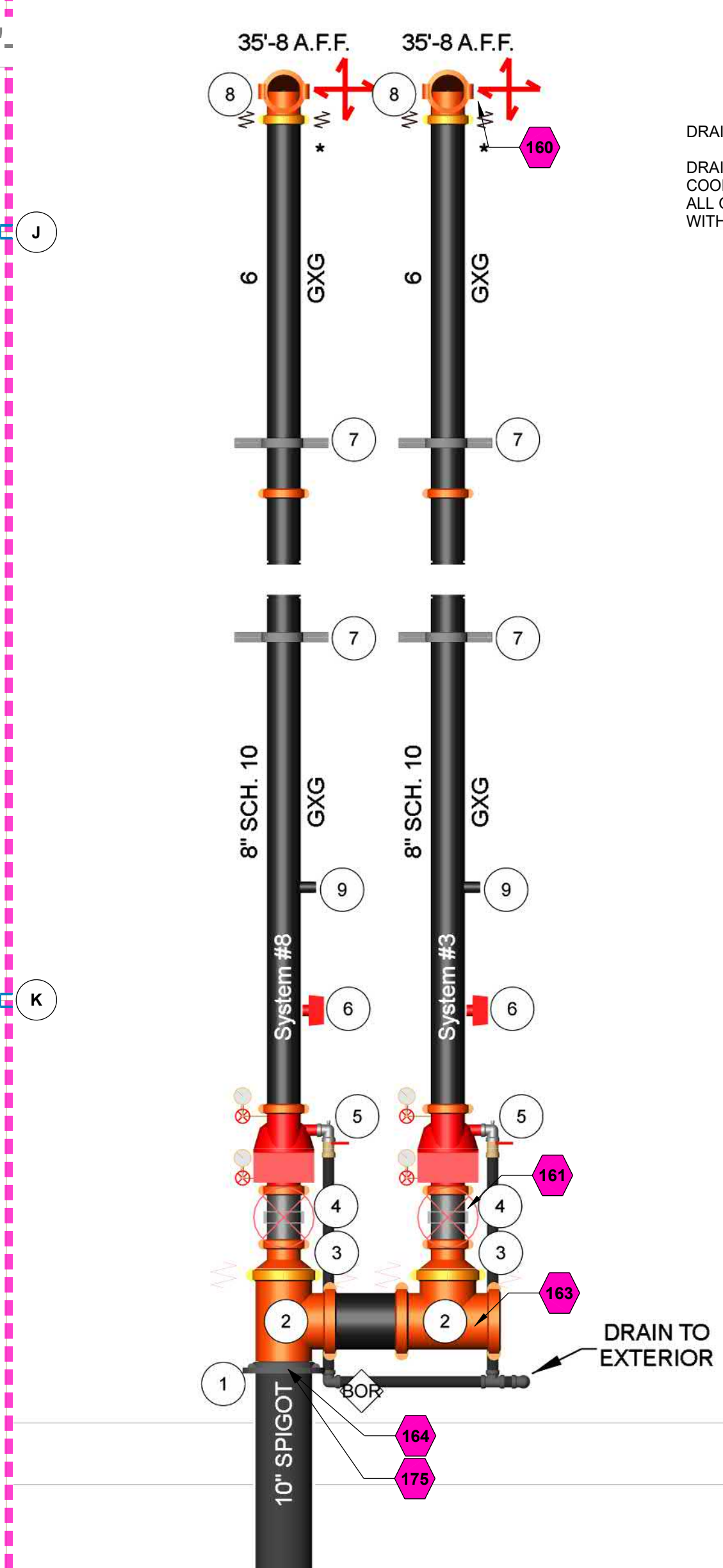
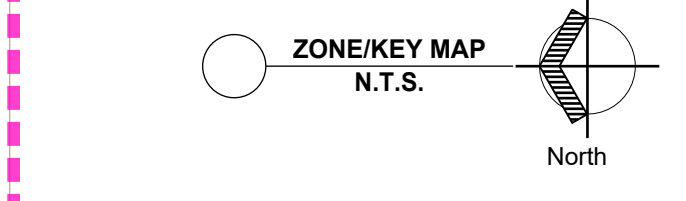
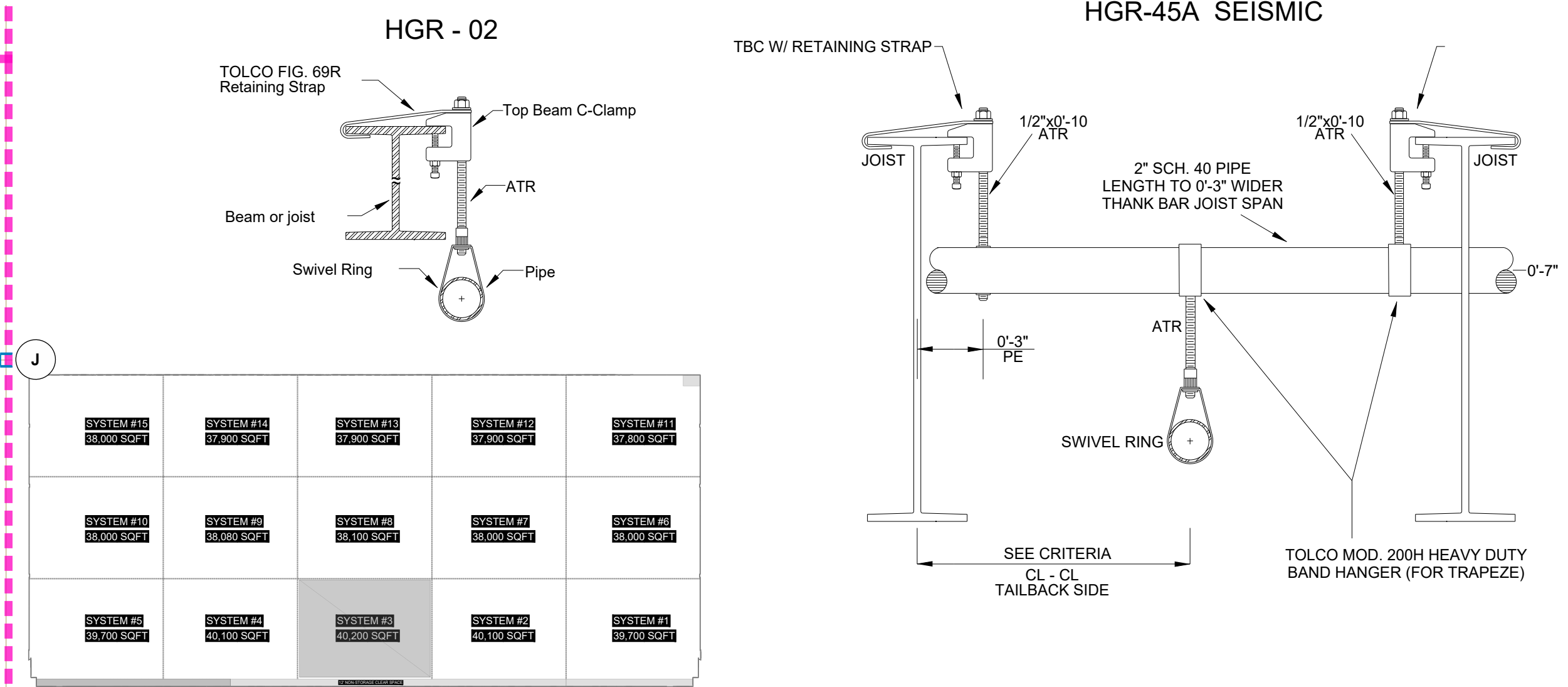
BRACING OMISSIONS PER NFPA 13, 2016 ED: 9.3.5.5.10.1(1)



**SEISMIC DETAILS**

- SEISMIC KEY:
- LATERAL BRACE
  - LONGITUDINAL BRACE
  - BRANCH LINE RESTRAINT

- LATERAL SWAY BRACE:
- SB-1 (6") 30'-0" MAX SPACING
  - SB-3 (4") 30'-0" MAX SPACING
  - SB-5 (8") 30'-0" MAX SPACING
- LONGITUDINAL BRACE IS LATERAL ON DEAD END



**DRAIN NOTE:**  
DRAIN LINE PIPING TO BE COORDINATED IN THE FIELD. ALL GRID SYSTEMS TO BE PROVIDED WITH LOW-POINT AUXILIARY DRAIN.

**RISER LEGEND**

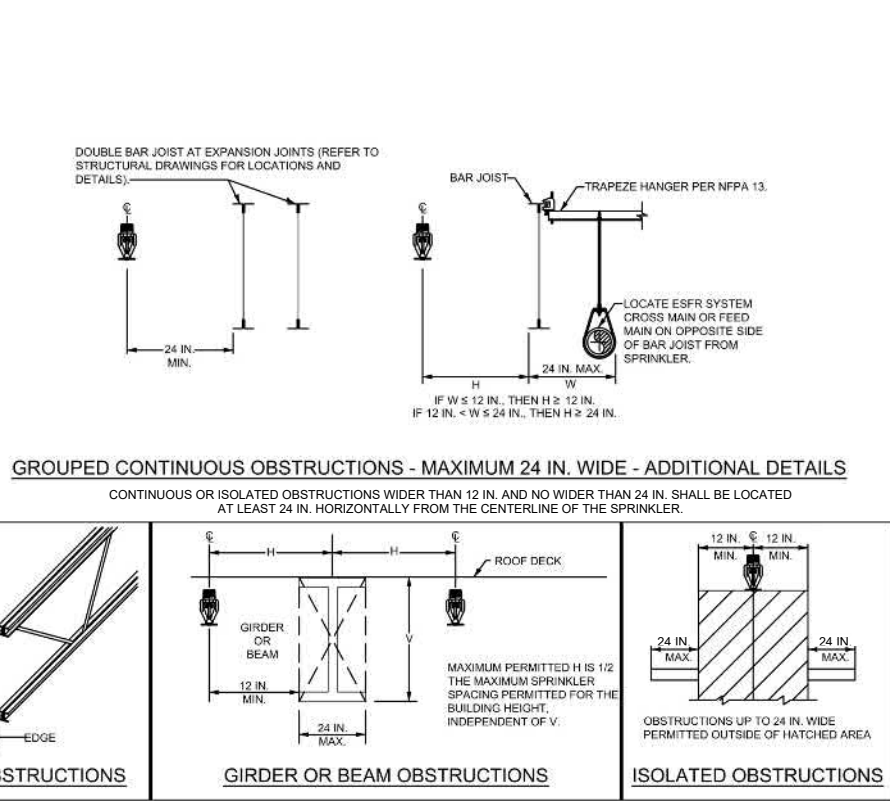
- 1" GROOVED FLANGE
- 1" GROOVED TEE
- 10x8 / 10x6 GROOVED CONCENTRIC REDUCER
- 8" / 6" GATE VALVE G-G W/ WALL POST INDICATOR & POTTER ROEMER MOD 6223 TAMPER SWITCH
- 8" / 6" VIKING MOD E-1 (G-G) EASY RISER CHECK VALVE W/ PRESSURE RELIEF TRIM KIT & NORMALLY CLOSED DRAIN
- 8" / 6" WATER FLOW SWITCH (WIRED BY OTHER)
- 8" / 6" RISER CLAMP W/ (2) 3-5 ATR, (4) NUTS/WASHERS & (2) HELIX INSERTS
- 8" / 6" GROOVED 90° "FIRLOCK"
- INSPECTOR'S TEST CONNECTION W/ FIELD ADJUSTABLE PRESSURE RELIEF VALVE SET @ 165 PSI (TYP)
- 10" PIPESTAND
- 10" GROOVED CAP
- ELECTRIC BELL (NOT SHOWN)
- \* DENOTES FLEX GROOVED COUPLING

Hydraulic Information	
Remote Area 3	
OCCUPANCY CLASSIFICATION	ESFR
MIN. END HEAD PRESSURE	40,000 (ESFR)
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	12
K-FACTOR	25.2
TOTAL WATER REQUIRED	2187.04
TOTAL PRESSURE REQUIRED	-4.400
SAFETY MARGIN (psi)	+74.375 (106.3%)

\*REFER TO SHEETS, 1 & 2 OF 17, FOR HYDRAULIC NODE TAG CONTINUATION

**RISER DETAIL SYSTEMS #8 & #3**

**ESFR SPACING DETAIL NTS**



- E.S.F.R. OBSTRUCTION NOTES:**
- E.S.F.R. SPRINKLER LOCATIONS SHALL BE COORDINATED WITH ROOF FRAMING PLANS WHICH DETAIL LOCATIONS OF BAR JOISTS, BEAMS, GIRDERS, HORIZONTAL BRACING, UPLIFT BRACING AND OTHER COMPONENTS OF THE ROOF FRAMING. SHOULD THE LOCATION FOR ANY ROOF FRAMING SYSTEM COMPONENT BE REVISED, THE REVISED LOCATION MUST BE IN A MANNER TO MAINTAIN APPROPRIATE HORIZONTAL DISTANCES FROM E.S.F.R. SPRINKLERS.
  - ALL OTHER BUILDING COMPONENTS AT OR NEAR THE CEILING MUST ALSO BE LOCATED IN A MANNER TO MAINTAIN APPROPRIATE HORIZONTAL DISTANCES FROM E.S.F.R. SPRINKLERS. SUCH BUILDING COMPONENTS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO PIPING, CONDUIT, DUCTWORK, LIGHTING, ETC.

No.	Date	By	Revision
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1	---	---	---
2	---	---	---
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4	---	---	---
5	---	---	---

FIRE PROTECTION - FIRE ALARM	
Date	04/07/23
Designed S.C.H	Checked D.S.
<b>FIRE PROTECTION PLAN</b>	
<b>HORN LAKE BUILDING 'A'</b>	
Drawing	5 OF 17