

ALL RISER PIPING IS 1" RESI-RISER BRASS U.N.O.
NOTE: ALL PIPING IS CENTER TO CENTER
FOR SITE DETAILS SEE SHEET FP2
SIZING BASED ON CALCULATIONS.
ALL NEW OVERHEAD PIPING IS 1" CPVC U.N.O..
EXTERIOR BELL TO BE MOUNTED AT LEAST SEVEN FEET ABOVE GRADE
ALL UNDERGROUND FROM CITY MAIN TO BASE OF RISER MANIFOLD IS BY OTHERS
AND ONLY SHOWN FOR CALCULATION PURPOSES.

IF ANY CEILING FANS ARE ADDED, OWNERS WILL BE REQUIRED TO MODIFY, MOVE, OR
ADD HEADS TO MEET CODES OF A 3'-0" CLEARANCE OF FANS. PERMIT AND
INSPECTION APPROVAL NEEDED

IF HEATING DIFFUSERS ARE ADDED IN CEILINGS, INSTALLER MUST COORDINATE WITH
CONTRACTOR TO ENSURE THAT ALL DIFFUSERS AREA A MINIMUM OF 24" AWAY
FROM SPRINKLER HEAD

NOTICE

This building contains a CPVC fire sprinkler system. This CPVC fire sprinkler system is a Life Safety Assembly and must be treated carefully. Please read the following before any activity which could contact this system.

CPVC piping components may be damaged by certain substances and construction practices.

DO NOT stack, support, hang equipment, or hang flexible wire/ cable, especially communications cable, or other material on the fire sprinkler system

ONLY system compatible materials including, but not limited to, solvent cements, caulks, sealants, cutting oils and thread pastes as noted by the CPVC fire sprinkler piping system manufacturer's installation instructions should be used in contact with this system.

DO NOT expose CPVC products to incompatible substances, such as cutting oils, non water based paints, packing oils, traditional pipe thread paste and dope, fungicides, termiticides, insecticides, detergents, bulking caulks, adhesive tape, solder flux, flexible wire / cable (with special consideration for communications cabling), and non-approved spray foam insulation materials.

DO NOT expose CPVC products to edible oils, solvents, or glycol-based anti-freeze fluids.

DO NOT expose CPVC products to open flame, solder, and soldering flux.

DO NOT drop, distort, or impact CPVC products or allow objects to be dropped on them.

DO NOT handle CPVC products with gloves contaminated with oils (hydrocarbons) or other incompatible materials.

DO NOT inject system with M.I.C. inhibitors unless they are listed in combination with this system.

Failure to follow this notice may cause cracks or fractures to develop in CPVC products resulting in property damage due to leaks or flooding. The presence of any visible cracks may require partial or full system replacement. For additional information contact the general contractor or the fire sprinkler system installer.

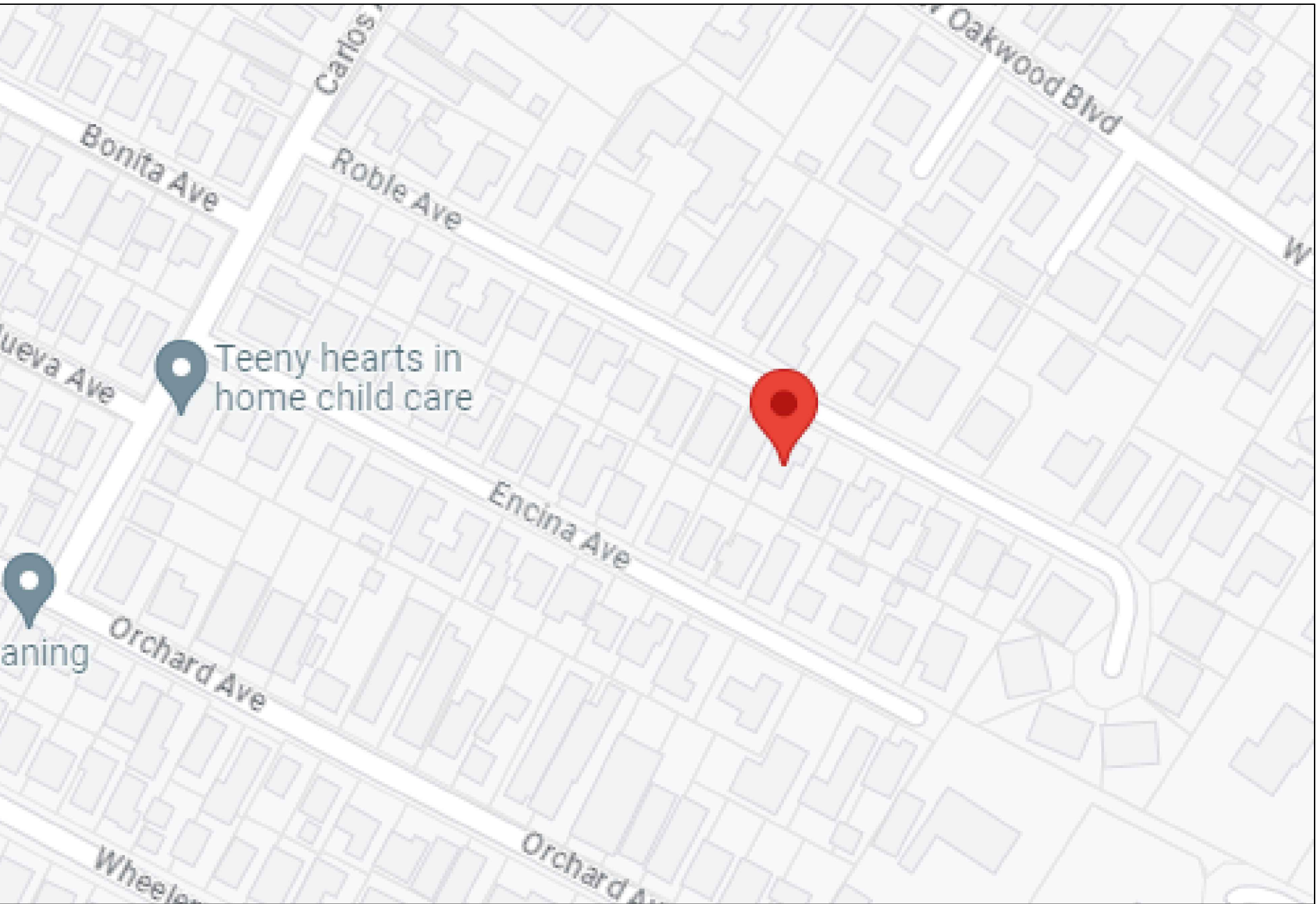
TABLE 7.5.6.3 MINIMUM DISTANCES FOR ORDINARY AND INTERMEDIATE TEMPERATURE RESIDENTIAL SPRINKLERS				
HEAT SOURCE	FROM EDGE OF SOURCE TO ORDINARY TEMPERATURE SPRINKLER		FROM EDGE OF SOURCE TO INTERMEDIATE TEMPERATURE SPRINKLER	
	IN	MM	IN	MM
SIDE OF OPEN OR RECESSED FIREPLACE	36	914	12	305
FRONT OF RECESSED FIREPLACE	60	1524	36	914
COAL- OR WOOD-BURNING STOVE	42	1067	12	305
KITCHEN RANGE	18	457	9	229
WALL OVEN	18	457	9	229
HOT AIR FLUES	18	457	9	229
UNINSULATED HEAT DUCTS	18	457	9	229
UNINSULATED HOT WATER PIPES	12	305	6	152
SIDE OF CEILING- OR WALL-MOUNTED HOT AIR DIFFUSERS	24	610	12	305
FRONT OF WALL-MOUNTED HOT AIR DIFFUSERS	36	914	18	457
HOT WATER HEATER OR FURNACE	6	152	3	76
LIGHT FIXTURE				
0 W - 250 W	6	152	3	76
250 W - 499 W	12	305	6	152

DRAWING INDEX

FP1-COVER /RISER/HANGER DETAILS PLAN
FP2-UNDERGROUND / SPIRINKLER PLANS

APPROVED
REDWOOD CITY FIRE DEPARTMENT

Reviewed for compliance
The stamping of this plan and/or specifications does not relieve the owner or contractor from compliance with the provisions of the applicable local and state regulations in effect at the time the Building Permit is issued



COMMUNITY DEVELOPMENT AND
TRANSPORTATION DEPARTMENT
Engineering and Transportation Division
www.redwoodcity.org

1017 Middlefield Road
P.O. Box 381
Redwood City, CA 94064
Telephone: 650.780.7380
Facsimile: 650.780.7309

FIRE HYDRANT FLOW TEST

Date and Time: August 30, 2023
Project Site Address: 247 Roble Avenue
(Subject Property) City of Redwood City
APN: 059-122-070
Customer Name: Gustavo Flores Phone: 650-268-9828
RWC Engineering Contact: Avery Lai Phone: 650-780.7366
Public Works Contact: Mike Villa Phone: 650-780-7491
Fire Authority and Contact: Gareth Harris Phone: 650-780-7400
Test Conducted By: Jose Morales
Payment Amount: Not Established Account: Not Established
Received by: n/a

READINGS	F.H. ADDRESS	PRESSURE ZONE	SHGL
Static Pressure (S) At [model node for] Test Hydrant or Blow-off Valve, nearest to the subject property	54 PSI	226 Roble Avenue J-MAIN-7870	
Residual Pressure (R1) At [model node for] Test Hydrant or Blow-off Valve, nearest to the subject property	20 PSI	226 Roble Avenue J-MAIN-7870	
Flow (Q1) At Flow Hydrant or model node	1200 GPM	226 Roble Avenue	
*Fire Hydrant Nozzle Coefficient (F) Field measurements by hydrant diffusers (e.g. Pollard or Hose Monster)	1	Flow Gauge	
Calculated Flow (Q2) for R2=	20 PSI	1200 GPM	

*Formula
Q2=P*Q1*(S-R2)/(S-R1)*0.54

Compiled by:
Avery Lai for
Water Purveyor Representative (Jose Morales)

SKETCH
EPANET 2.2 Hydraulic Model
RobleAvenue_247_Monitor_Water_EX_MDO_2023-07-20.net
Calibrated to 14030.9 GPM at 49 Orchard, 13/19
Demand Multiplier = 1.73
Static Pressure calculated from SHGL

Property	Value
Flow (Q1)	1200 GPM
Static Pressure (S)	54 PSI
Residual Pressure (R1)	20 PSI
Flow (Q2)	1200 GPM
Flow (Q3)	1200 GPM
Flow (Q4)	1200 GPM
Flow (Q5)	1200 GPM
Flow (Q6)	1200 GPM
Flow (Q7)	1200 GPM
Flow (Q8)	1200 GPM
Flow (Q9)	1200 GPM
Flow (Q10)	1200 GPM
Flow (Q11)	1200 GPM
Flow (Q12)	1200 GPM
Flow (Q13)	1200 GPM
Flow (Q14)	1200 GPM
Flow (Q15)	1200 GPM
Flow (Q16)	1200 GPM
Flow (Q17)	1200 GPM
Flow (Q18)	1200 GPM
Flow (Q19)	1200 GPM
Flow (Q20)	1200 GPM

MAXIMUM DISTANCE BETWEEN HANGERS												
NOMINAL PIPE SIZE (in.)	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"	5"	6"	8"
STEEL PIPE EXCEPT THREADED LIGHTWALL	N/A	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0
THREADED LIGHTWALL STEEL PIPE	N/A	12-0	12-0	12-0	12-0	12-0	12-0	N/A	N/A	N/A	N/A	N/A
COPPER TUBE	8-0	8-0	10-0	10-0	12-0	12-0	12-0	15-0	15-0	15-0	15-0	15-0
CPVC	5-6	6-0	6-6	7-0	8-0	8-0	12-0	N/A	N/A	N/A	N/A	N/A
POLYBUTYLENE (PSP)	N/A	3-6	4-7	5-0	5-11	N/A	N/A	N/A	N/A	N/A	N/A	N/A
POLYBUTYLENE (CTS)	2-11	3-4	3-11	4-5	5-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A

BUILDING SYSTEM NOTES

- SYSTEM DESIGN, INSTALLATION AND TESTING SHALL BE IN ACCORDANCE WITH NFPA 13D (2022 EDITION) AND REDWOOD CITY FIRE.
- ALL MATERIAL AND DEVICES TO BE U.L. LISTED AND/OR F.M. APPROVED. ALL DEVICES SHALL BE NEW AND FREE OF DEFECTS.
- DWELLING SYSTEM PIPING TO BE CPVC U.N.O.
A: FITTINGS SHALL BE UTILIZED PURSUANT TO MANUFACTURERS LISTING.
B: RISER PIPING SHALL BE BRASS RES-RISER.
- HANGER TYPES AND SPACING SHALL BE INSTALLED PER NFPA 13D AND MAUFACTURERS LISTING.
- HEAD LOCATIONS AND SPACING PER NFPA 13D (2022 EDITION) FOR RESIDENTIAL UNITS. CALCULATIONS AS PER NFPA 13D (2022 EDITION).
- ANY AND ALL ALARM SYSTEM WRING AND INSTALLATION IS BY OTHERS.
- UNDERGROUND FIRE SERVICE SHALL BE INSTALLED BY OTHERS.
- ALL DRILLING AND BORING OF HOLES SHALL BE DONE IN STRICT ACCORDANCE WITH THE STRUCTURAL ENGINEERS REQUIREMENTS. DO NOT UNDER ANY CIRCUMSTANCES CUT, MODIFY OR OTHERWISE MODIFY PRE-MANUFACTURED TRUSSES.
- VERIFY FINISH CEILING ELEVATION PRIOR TO INSTALLATION OF SPRINKLER HEADS.
- VERIFY LOCATION AND SIZE OF ALL OBSTRUCTIONS, LIGHT FIXTURES, CABINETS ECT...
- ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE FIRE STOPPED. FIRE STOPPING MATERIAL SHALL BE INSTALLED PER MANUFACTURERS INSTRUCTION BY OTHERS.
- HAZARDOUS MATERIAL SHALL BE PLACED IN A SECURE (LOCKED) AREA AT THE COMPLETION OF EACH WORK DAY.
- ALL WORK SHALL BE INSTALLED IN A SAFE AND WORKMANLIKE-MANNER. REPORT ANY UNSAFE ACTIVITY OR JOB-SITE HAZARD TO YOUR SUPERVISOR IMMEDIATELY.
- REPORT ALL INJURIES REQUIRING MEDICAL ATTENTION THE SAME BUSINESS DAY IN WHICH THEY OCCUR.
- SPRINKLER PIPE SIZING HAS BEEN ESTABLISHED BY HYDRAULIC CALCULATIONS.
- ALL PIPING SHALL BE HYDROSTATIC TESTED AT 200 LBS.FOR 2 HOURS AT TIME OF ROUGH FRAMING AND SHALL BE WITNESSED BY THE FIRE INSPECTOR.
- EXTERIOR FIRE ALARM TO BE MOUNTED AT LEAST SEVEN FEET ABOVE GRADE,VISBLE FROM THE STREET

ADDITIONAL NOTES PER FIRE DEPT.

- This residential sprinkler system shall be designed and installed in accordance with NFPA 13D and REDWOOD CITY FIRE.
- Only listed and approved devices shall be installed in this system.
- Only new listed residential sprinklers shall be employed in the installation of this sprinkler system.
- A minimum of two spare fire sprinklers of each type, temperature rating and orifice size, along with a sprinkler wrench, shall be located in a spare head cabinet at the system riser or other approved location. If less than three heads of a particular type are used, only one spare head shall be provided.
- All piping shall be provided with hangers and shall be supported per code and manufacturer's specifications.
- All piping shall be hung from structure members.
- All CPVC piping shall be installed by persons who have been certified by the manufacturer for installation of CPVC piping.
- All primers and glues shall be listed and approved for use with CPVC piping in systems using CPVC pipe.
- Underground mains and lead-in connections shall be flushed before connection is made to sprinkler piping.
- This system has been designed with a backflow prevention device as required. It is to be installed by others. Once installed it must be certified by a 3rd party.

TOTAL PROJECT AREA = 600 SQFT.

SENJU RC-CONCEALED

"AHJ = REDWOOD CITY FIRE"

328-20-CARANCE.DWG

HYDRAULIC DATA		NOTES TO THE FOREMAN	
STATIC PSI:	54		
RESIDUAL PSI:	20		
GPM FLOWING:	1200		
HYDRANT:	NA		
OUTL. SIZE:	NA		
LOC:	NA		
SRC:	RWC WATER		

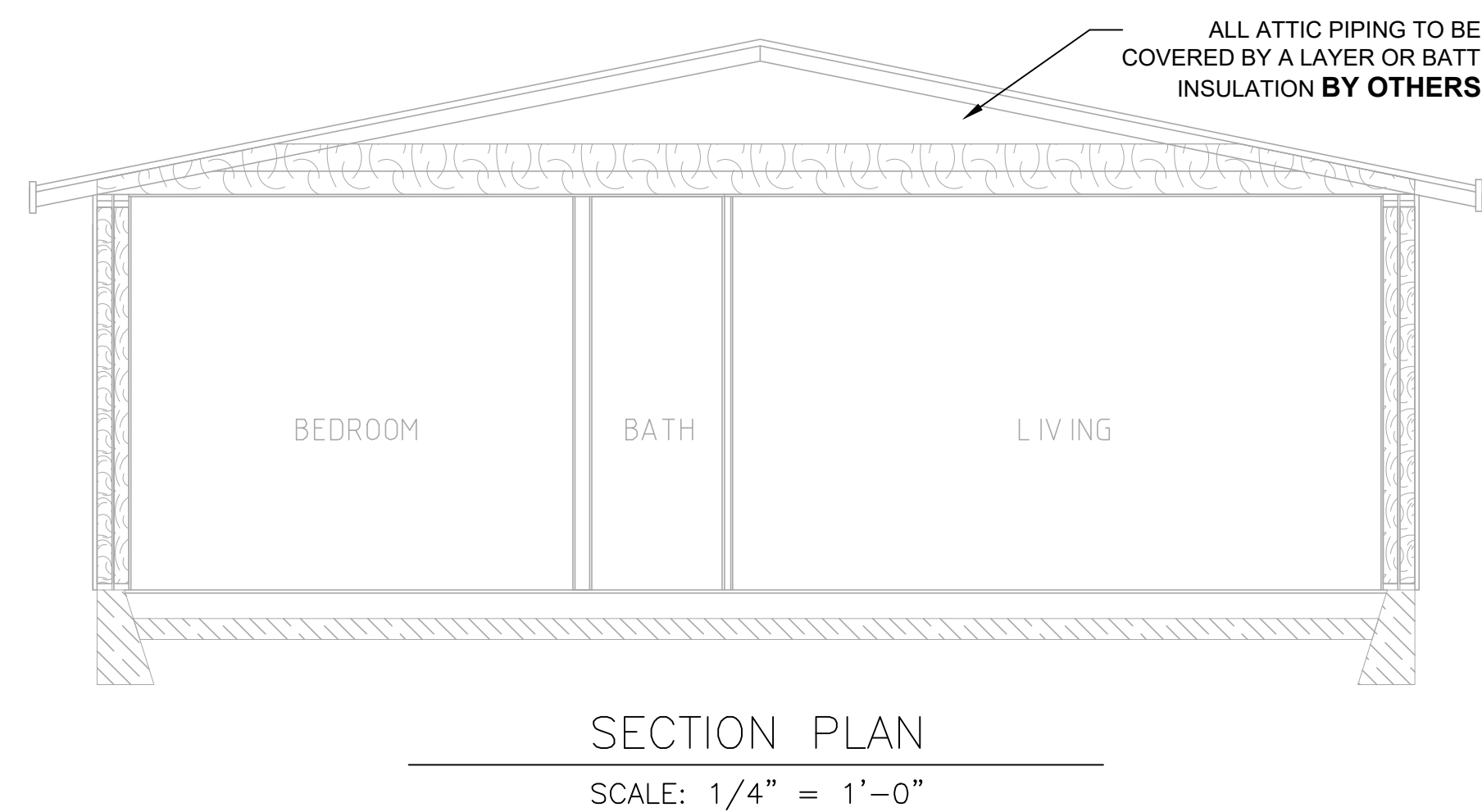
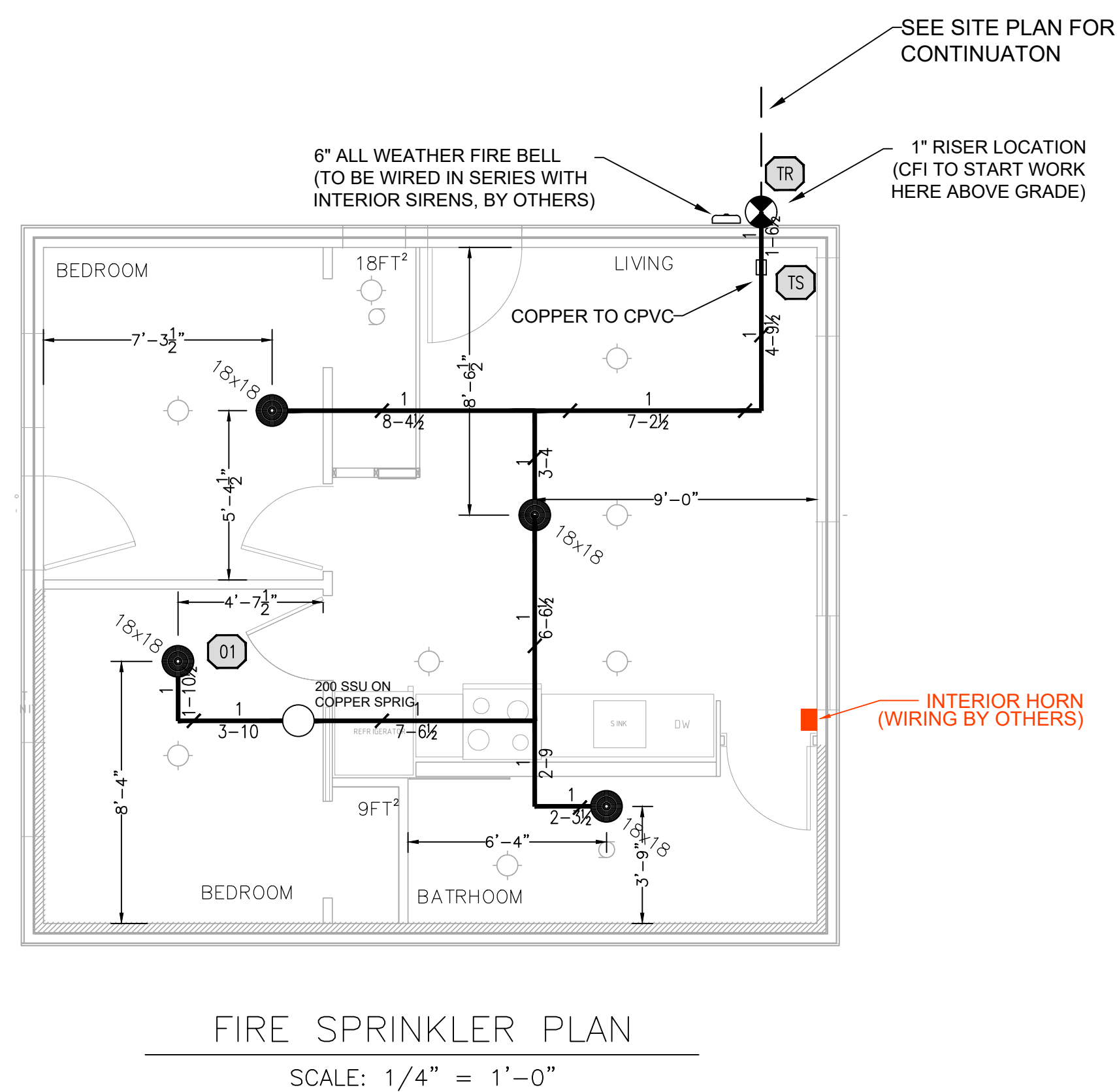
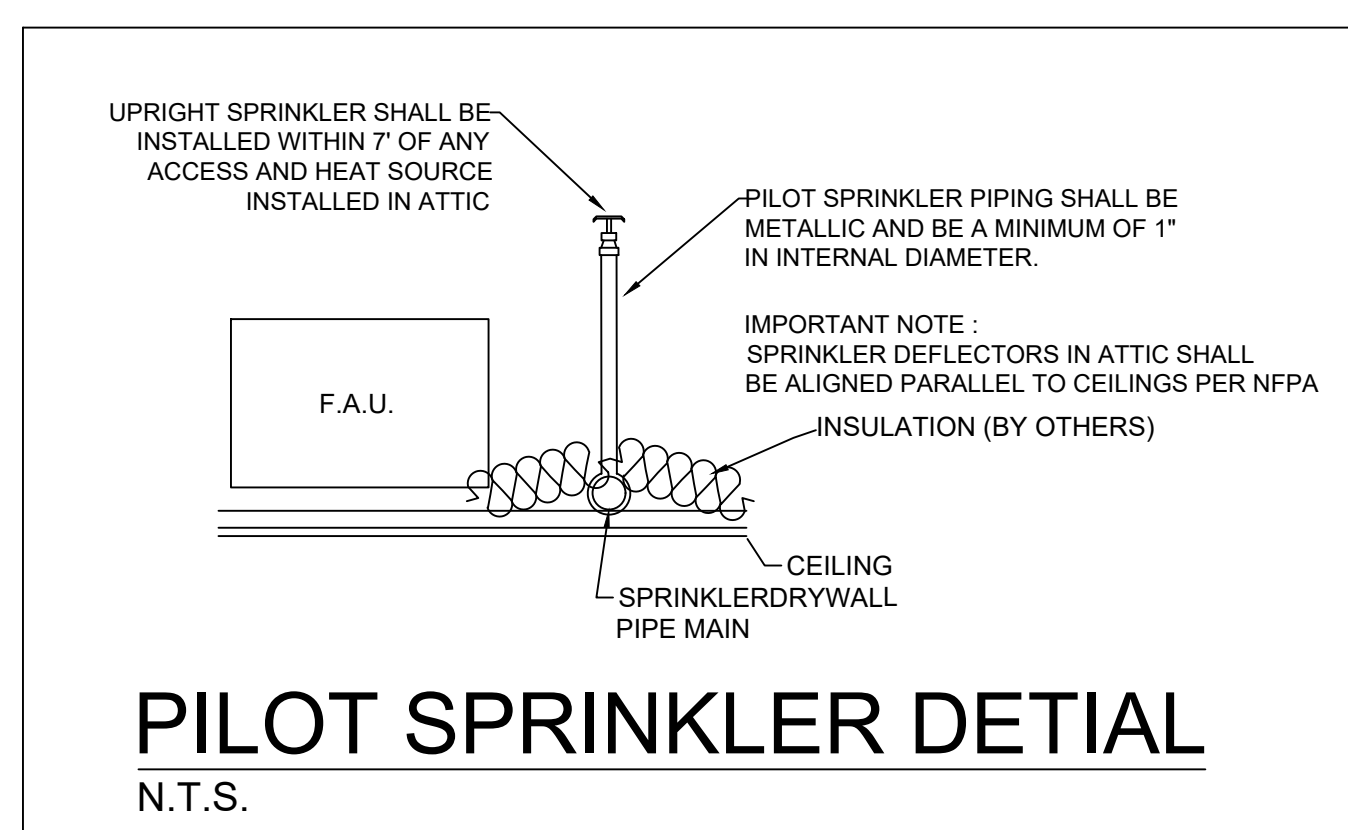
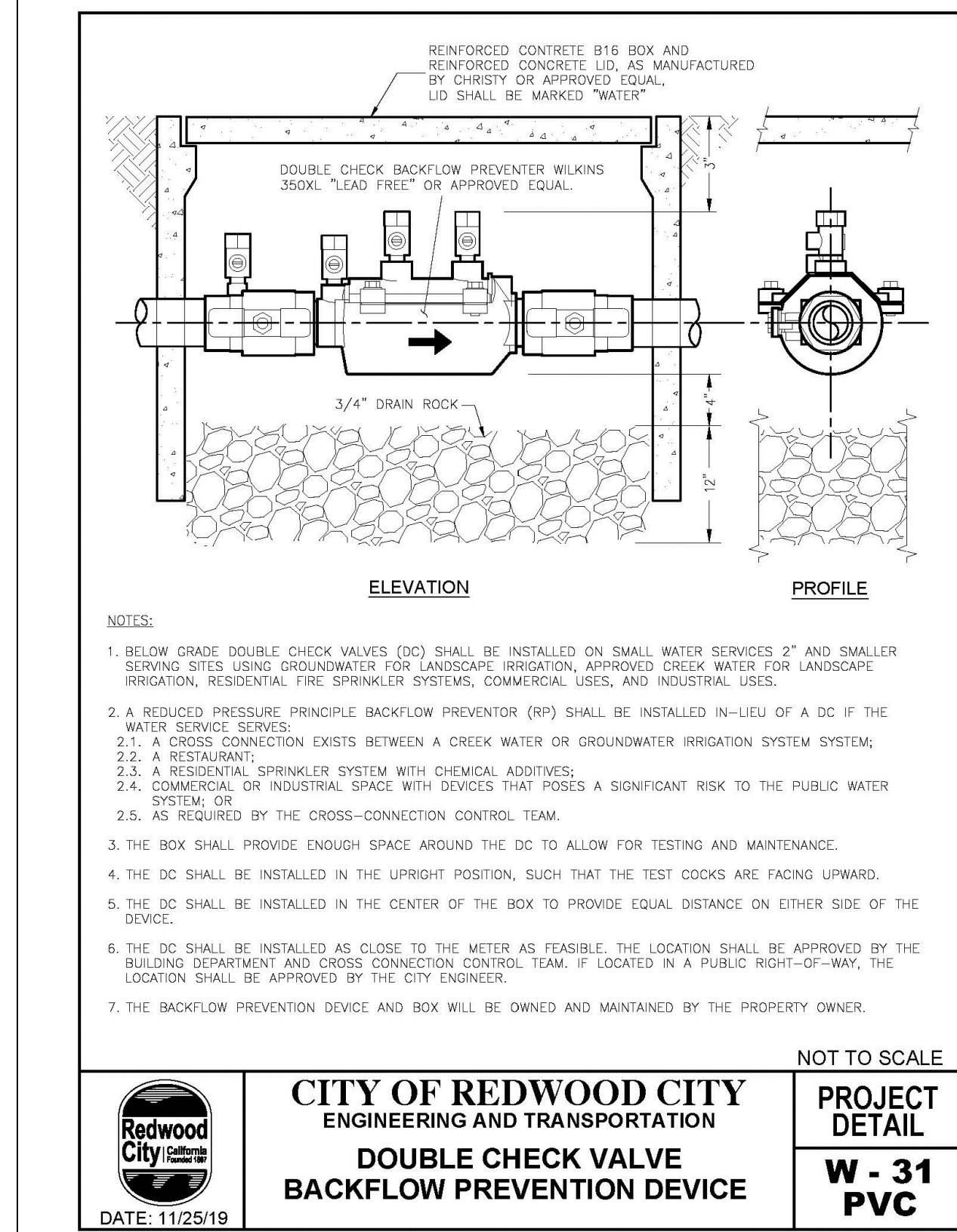
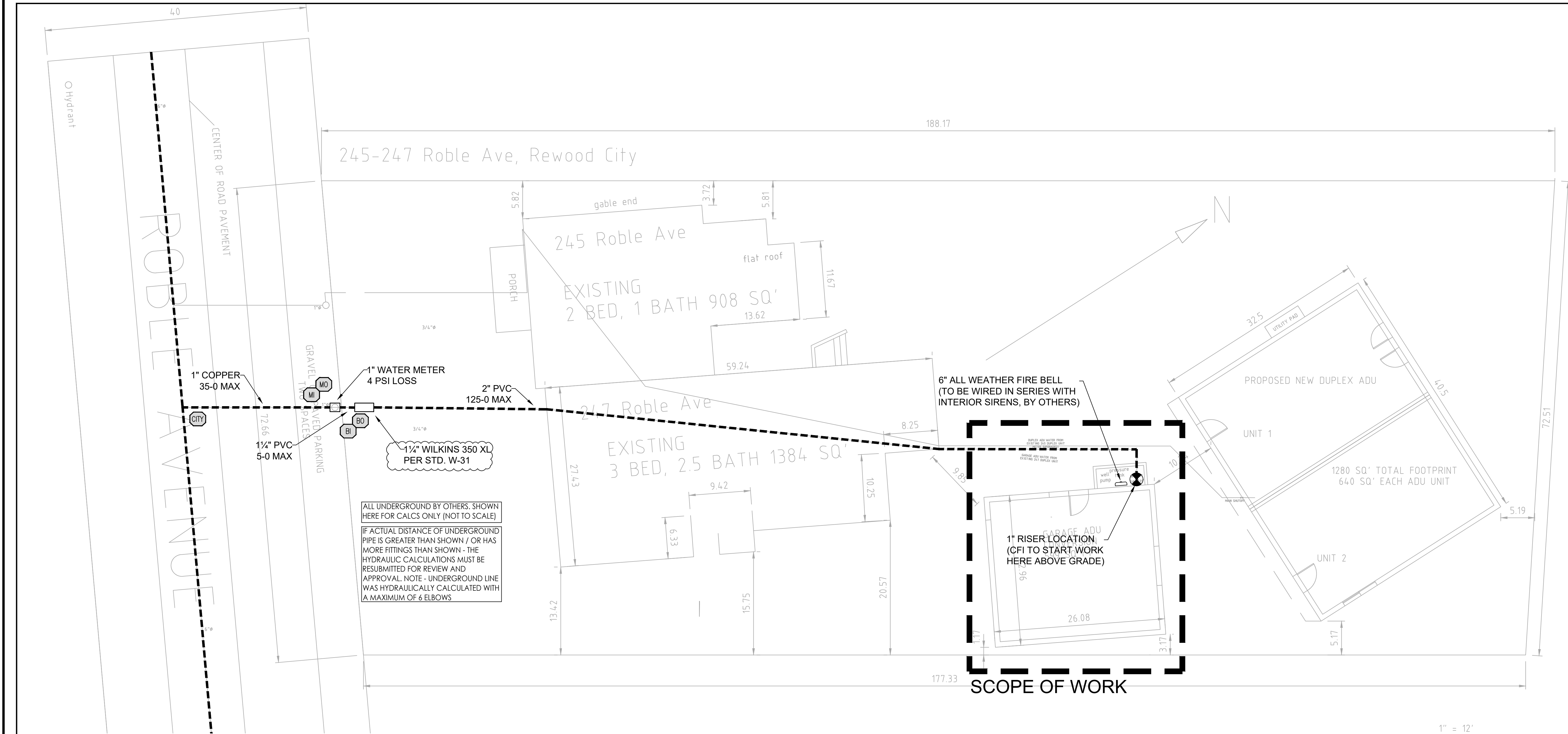
WK	DATE	BY	REVISION
1	9.6.23	GV	REVISED PLAN PER PLAN CHECK COMMENTS
2			
3			
4			
5			
6			

APPROVALS	CONTRACT WITH
REDWOOD CITY FIRE	JEFF MILLER
	328 ROBLE AVE -
	REDWOOD CITY, CA
WATER DEPARTMENT	CONTACT
REDWOOD CITY WATER	JEFF MILLER
	650-799-6880

SCALE	AS NOTED
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ADU @ ROBLE AVE 247 ROBLE AVE - REDWOOD CITY, CA FP1-COVER /RISER/HANGER DETAILS PLAN	SYSTEM NFPA 13D OCCUPANCY R DRAWN BY DATE 09/06/2023 PROJECT NO. 328-20 FP1 OF 2
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REVISION 1



FIRE PLAN REVIEW & ACCEPTANCE
THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPLICABLE CALIFORNIA BUILDING STANDARDS CODES AND NATIONAL STANDARDS AS ADOPTED BY THE STATE OF CALIFORNIA AND AMENDED AND ADOPTED BY THE LOCAL JURISDICTION.
ALL PLANS ARE SUBJECT TO FIELD CONDITIONS AND FINAL APPROVAL AT THE TIME OF INSPECTION. PLAN REVIEW ACCEPTANCE DOES NOT PERMIT CONSTRUCTION TO PROCEED IN VIOLATION OF ANY LAW OR LOCAL REGULATION.
By **Craig Hanson** Date 10/30/2023
WEST COAST CODE CONSULTANTS, WC³



Hydraulic Data Summary: 1 HEAD CALC	
Hazard Class:	RESIDENTIAL 13D
System Type:	Wet System
NODES CALC'D:	01
Max. Spacing:	18x18
K-Factor:	4.9
Orifice Size:	1/2"
File Name:	328-20
Hose Allowance:	05
Sq. Footage:	1 HEADS
Density:	.05
Head count:	ONE
GPM @ BOR:	22.44
PSI @ BOR:	26.3
Safety Margin:	20%

<div>1. DOUBLE CHECK VALVE</div>  <div>2. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER</div>  <div>3. FIRE BELL</div>  <div>4. FIRE ALARM</div>  <div>5. FIRE ALARM PULL STATION</div>  <div>6. FIRE ALARM HORN</div>  <div>7. FIRE ALARM BELL</div>  <div>8. FIRE ALARM SIREN</div>  <div>9. FIRE ALARM BELL</div>  <div>10. FIRE ALARM SIREN</div> 		<div>HYDRAULIC DATA</div> <div>STATIC PSI: 54</div> <div>RESIDUAL PSI: 20</div> <div>GPM FLOWING: 1200</div> <div>HYDRANT: NA</div> <div>OUTL. SIZE: NA</div> <div>LOC: NA</div> <div>SRCE: RWC WATER</div>		<div>NOTES TO THE FOREMAN</div>		<div>Sprinkler Head Schedule</div> <table><thead><tr><th>Symbol</th><th>Count</th><th>Thread</th><th>K-Factor</th><th>Description</th><th>Note</th></tr></thead><tbody><tr><td>○</td><td>1</td><td>1/2"</td><td>5.6</td><td>RELIABLE RA1425 1/2" OR 200 BZ UP</td><td>ON SPRIG</td></tr><tr><td>●</td><td>4</td><td>1/2"</td><td>4.9</td><td>SENJU SS8464 7/16 FR 162 B CC</td><td>ON DROP</td></tr></tbody></table> <div>5 = Total Number of Heads This Floor</div>		Symbol	Count	Thread	K-Factor	Description	Note	○	1	1/2"	5.6	RELIABLE RA1425 1/2" OR 200 BZ UP	ON SPRIG	●	4	1/2"	4.9	SENJU SS8464 7/16 FR 162 B CC	ON DROP	<div>MK</div> <div>DATE</div> <div>9.6.23</div> <div>BY</div> <div>GV</div> <div>REVISION</div> <div>REVISED PLAN PER PLAN CHECK COMMENTS</div>	<div>APPROVALS</div> <div>REDWOOD CITY FIRE</div> <div>JEFF MILLER</div> <div>328 ROBLE AVE -</div> <div>REDWOOD CITY, CA</div> <div>WATER DEPARTMENT</div> <div>REDWOOD CITY WATER</div>	<div>CONTRACT WITH</div> <div>JEFF MILLER</div> <div>328 ROBLE AVE -</div> <div>REDWOOD CITY, CA</div> <div>CONTACT</div> <div>JEFF MILLER</div> <div>650-799-6880</div>	<div>ADU @ ROBLE AVE</div> <div>247 ROBLE AVE - REDWOOD CITY, CA</div> <div>FP2 - UNDERGROUND / SPRINKLER PLAN</div> <div><div>CONTROL FIRE FIRE PROTECTION ENGINEERS</div><div>50 Woodside Plaza, #214 Redwood City, CA 94061 PH (650) 268-9928 FAX (650) 649-1797 C-16 #1015580</div></div> <div><div>DATE 09/06/2023</div><div>PROJECT NO. 328-20</div><div>FP2 OF 2</div></div>	<div>SYSTEM</div> <div>NFPA 13D</div> <div>OCCUPANCY</div> <div>R</div> <div>DRAWN</div> <div>GV</div> <div>DATE</div> <div>09/06/2023</div> <div>PROJECT NO.</div> <div>328-20</div> <div>FP2 OF 2</div>
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REVISION 1

FB23-0163 247 Roble Ave Job Copy