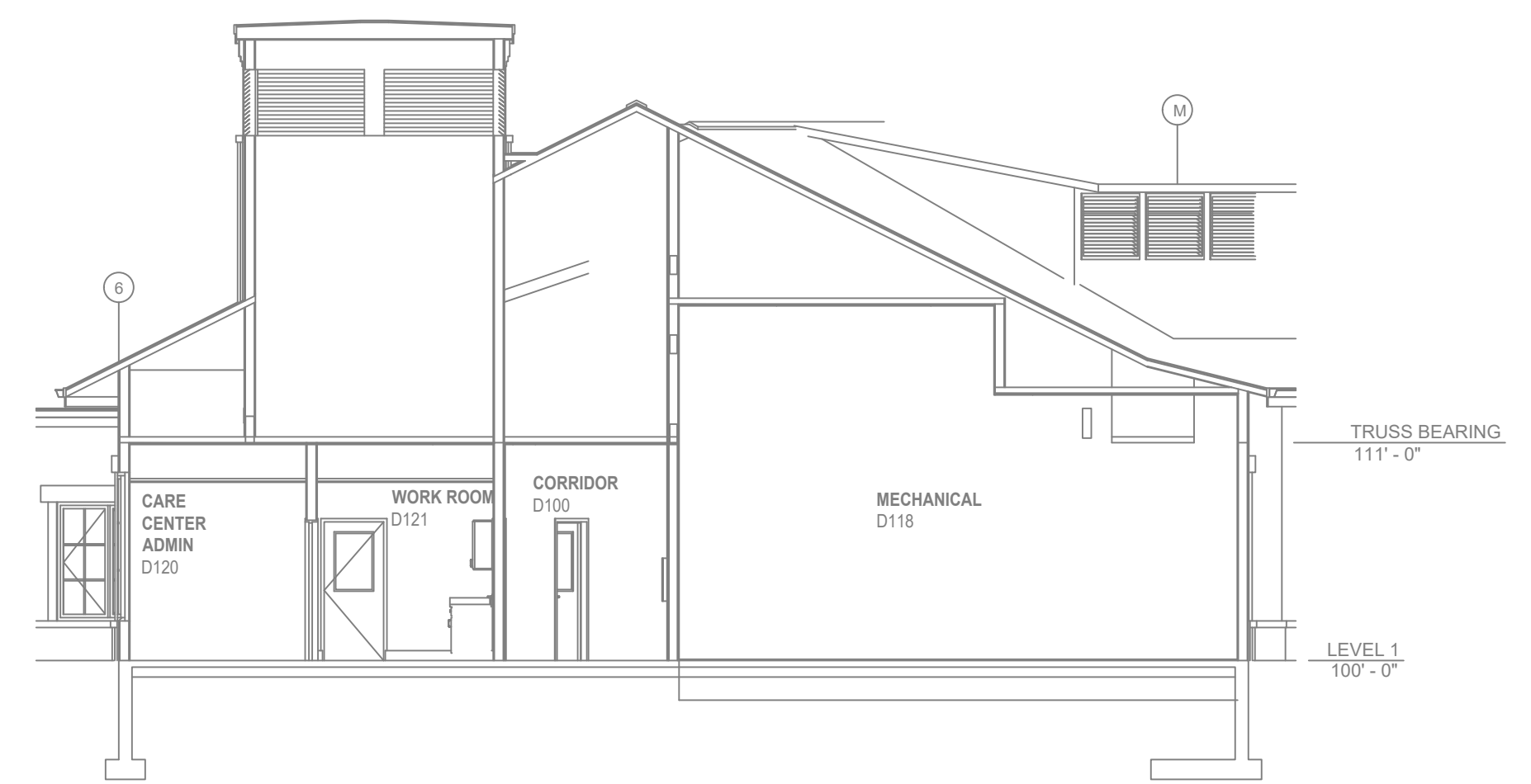


**GENERAL NOTES**

- MINNESOTA BUILDING CODE (2020)
- 1.1. OCCUPANCY INSTITUTIONAL TYPE I-1; ASSISTED LIVING  
1.2. TYPE OF CONSTRUCTION V-A  
1.3. SPRINKLER AREAS (APPROXIMATE - SEE ARCHITECTURAL PLANS FOR ACTUAL)  
1ST FLOOR = 43,846 S.F.  
ATTIC = 43,846 S.F.
- INSTALLATION STANDARDS  
SPRINKLER SYSTEM DESIGNED AND INSTALLED PER NFPA-13(2016)
- SPRINKLER PIPE TYPES:
  - 1" BRANCH LINES TO BE BLAZEMASTER CPVC PIPING WITH CEMENTED FITTINGS
  - 1/2" THROUGH 3" MAIN & BRANCH LINES TO BE BLAZEMASTER CPVC PIPING WITH CEMENTED FITTINGS
  - 1" BRANCH LINES TO BE BLK SCHEDULE 40 PIPING WITH THREADED FITTINGS
  - 1/2" THROUGH 4" MAIN & BRANCH LINES TO BE BLK SCHEDULE 10 PIPING WITH GROOVED FITTINGS
  - MAINS & BRANCH LINES TO BE ROLL-GROOVED BLK SCHEDULE 10 PIPING
  - 1" BRANCH LINES TO BE THREADED BLK SCHEDULE 40 WITH THREADED FITTINGS
  - 1/2" THROUGH 6" MAIN & BRANCH LINES TO BE GROOVED BLK SCHEDULE 10 WITH GROOVED FITTINGS
- DESIGN CRITERIA
  - WATER SERVICE ROOM, TRASH ROOMS, STORAGE CLOSETS, ELECTRICAL CLOSETS, & HVAC CLOSETS ARE DESIGNED TO ORDINARY HAZARD GROUP 1 PER NFPA 13
  - UNITS, OFFICES, MAIL ROOM, & ATTIC ARE DESIGNED TO LIGHT HAZARD AND RESIDENTIAL OCCUPANCY CRITERIA PER NFPA 13
  - REMOTE AREA REDUCTIONS HAVE BEEN TAKEN WHERE APPLICABLE PER NFPA 13 SEC. 11.2.3.2.3
- NOTES:
  - ALL MATERIAL TO BE NEW AND MEET U.L. STANDARDS
  - HANGERS TO BE INSTALLED IN ACCORDANCE WITH NFPA 13 (2016) - SEE PLAN FOR HANGING REQ.
  - DRY SYSTEM PIPE SLOPE INSTALLATION: SPRINKLER MAINS TO BE 1/4" PER 10 FEET; SPRINKLER BRANCH LINES TO BE 1/2" PER 10 FEET
  - DRY SYSTEM CAPACITY:
    - 442.8 GAL.
- SYMBOLS USED ON DRAWINGS:
  - [-2.5'] PIPE ELEVATION A.F.F.
  - [-1.2'] PIPE ELEVATION BELOW B.O.D.
  - [RH] ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD UNLESS NOTED)
  - [H] HYDRAULIC CALCULATION JUNCTION POINT
  - 9'-0" CEILING HEIGHT
- SCOPE OF WORK:
  - TO INSTALL 1 WET ZONE FOR THE WHOLE 1ST FLOOR, & 1 DRY ZONE FOR THE ATTIC AS SHOWN ON THESE DRAWINGS.
  - ALL AREAS OF THE BUILDING TO BE INSTALLED AND COVERED IN ACCORDANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND PER NFPA 13 (2016)



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

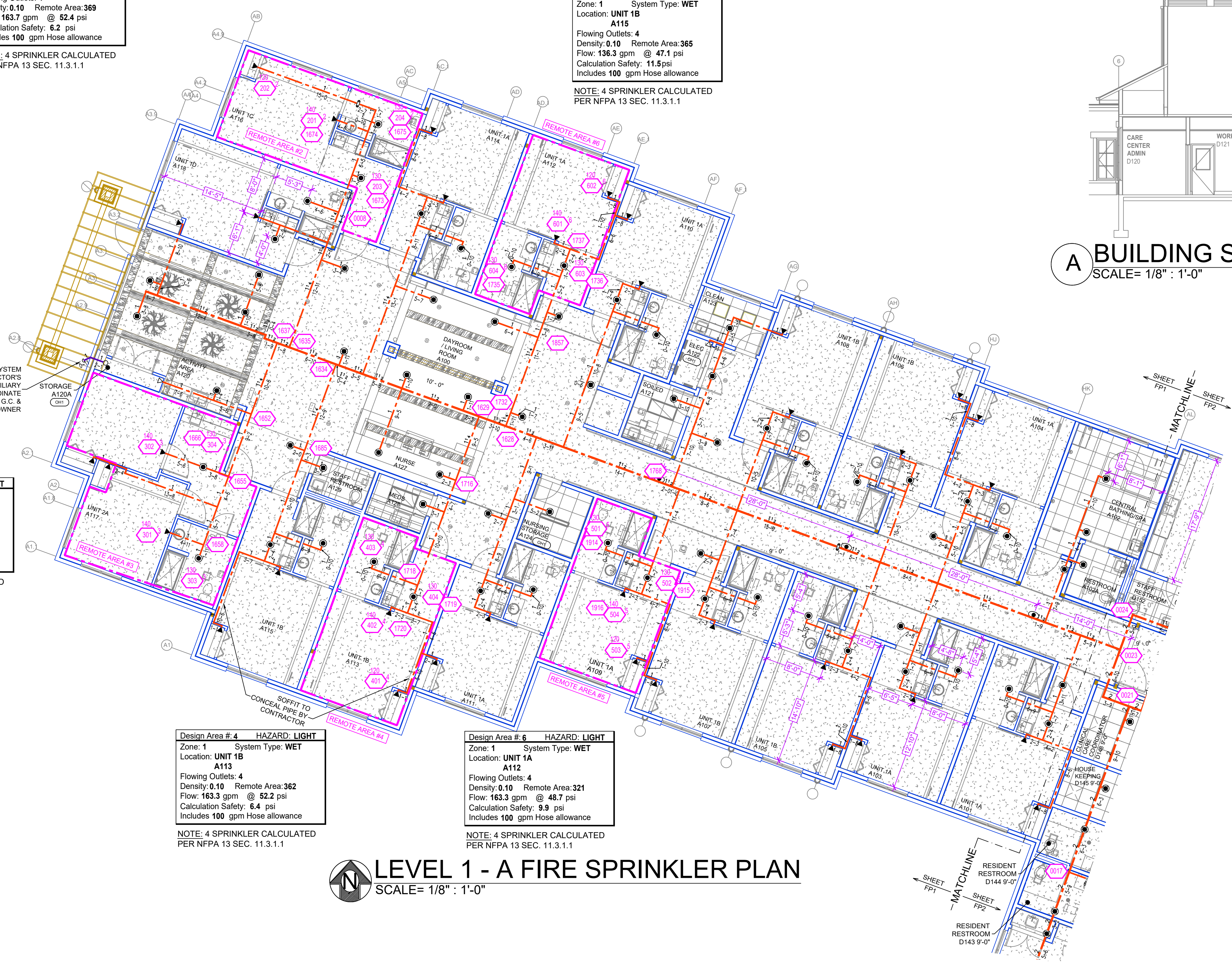
**Design Area # 2 HAZARD: LIGHT**  
Zone: 1 System Type: WET  
Location: UNIT 1C  
A116  
Flowing Outlets: 4  
Density: 0.10 Remote Area: 369  
Flow: 163.7 gpm @ 52.4 psi  
Calculation Safety: 6.2 psi  
Includes 100 gpm Hose allowance  
NOTE: 4 SPRINKLER CALCULATED PER NFPA 13 SEC. 11.3.1.1

**Design Area # 5 HAZARD: LIGHT**  
Zone: 1 System Type: WET  
Location: UNIT 1B  
A115  
Flowing Outlets: 4  
Density: 0.10 Remote Area: 365  
Flow: 136.3 gpm @ 47.1 psi  
Calculation Safety: 11.5 psi  
Includes 100 gpm Hose allowance  
NOTE: 4 SPRINKLER CALCULATED PER NFPA 13 SEC. 11.3.1.1

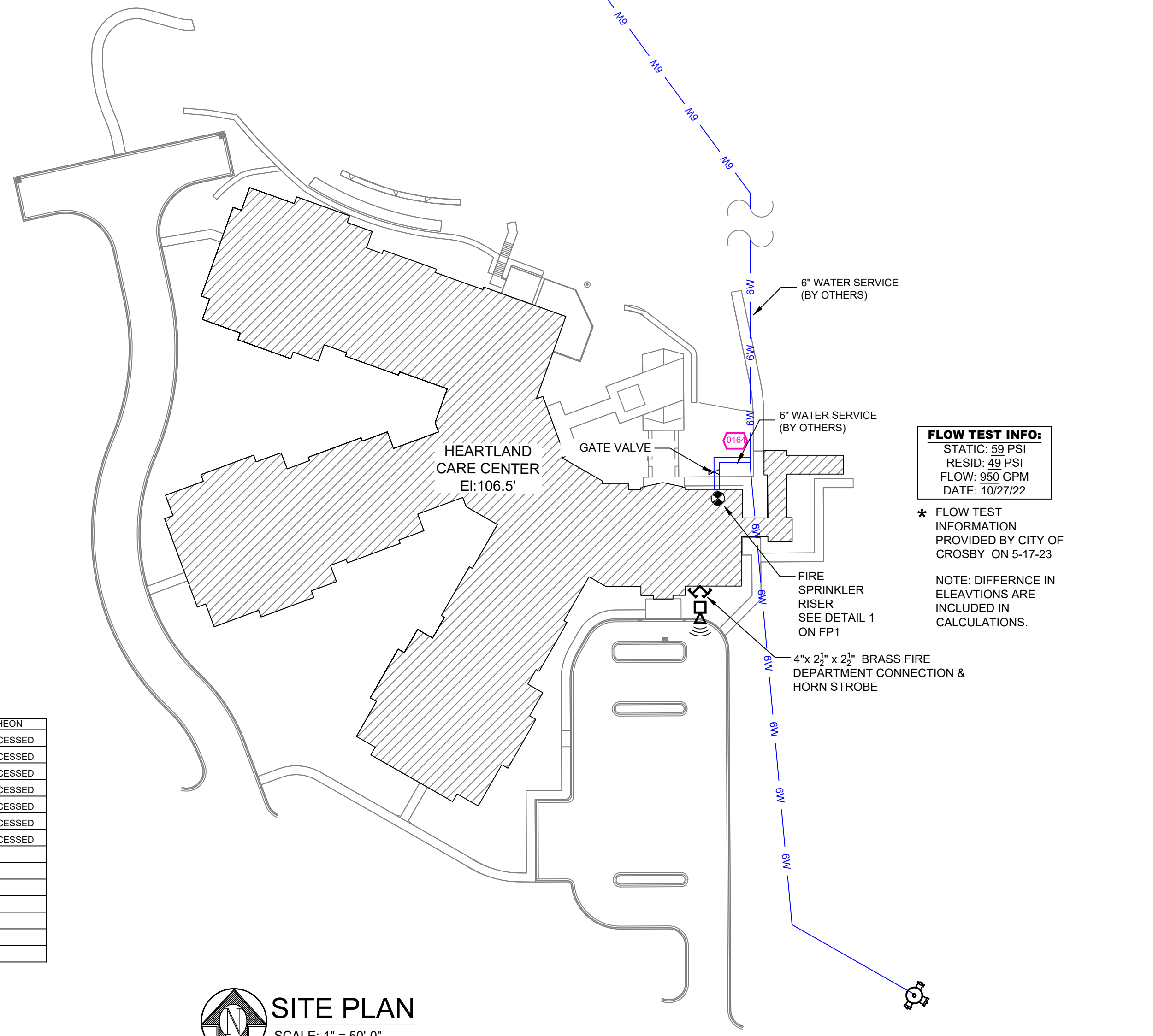
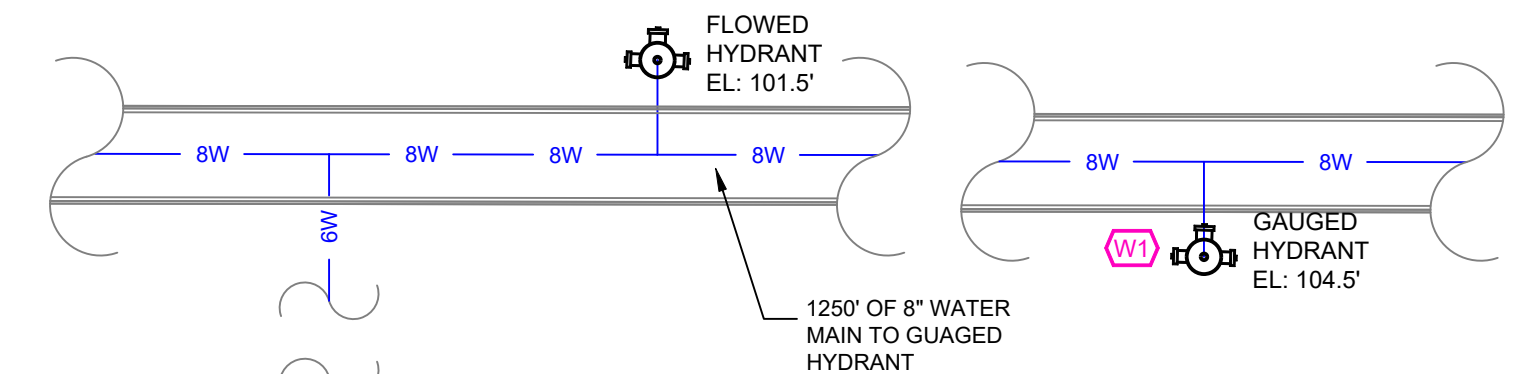
**Design Area # 3 HAZARD: LIGHT**  
Zone: 1 System Type: WET  
Location: UNIT 2A  
A117  
Flowing Outlets: 4  
Density: 0.10 Remote Area: 559  
Flow: 163.7 gpm @ 52.6 psi  
Calculation Safety: 6 psi  
Includes 100 gpm Hose allowance  
NOTE: 4 SPRINKLER CALCULATED PER NFPA 13 SEC. 11.3.1.1

**Design Area # 4 HAZARD: LIGHT**  
Zone: 1 System Type: WET  
Location: UNIT 1B  
A113  
Flowing Outlets: 4  
Density: 0.10 Remote Area: 362  
Flow: 163.3 gpm @ 52.2 psi  
Calculation Safety: 6.4 psi  
Includes 100 gpm Hose allowance  
NOTE: 4 SPRINKLER CALCULATED PER NFPA 13 SEC. 11.3.1.1

**Design Area # 6 HAZARD: LIGHT**  
Zone: 1 System Type: WET  
Location: UNIT 1A  
A112  
Flowing Outlets: 4  
Density: 0.10 Remote Area: 321  
Flow: 163.3 gpm @ 48.7 psi  
Calculation Safety: 9.9 psi  
Includes 100 gpm Hose allowance  
NOTE: 4 SPRINKLER CALCULATED PER NFPA 13 SEC. 11.3.1.1

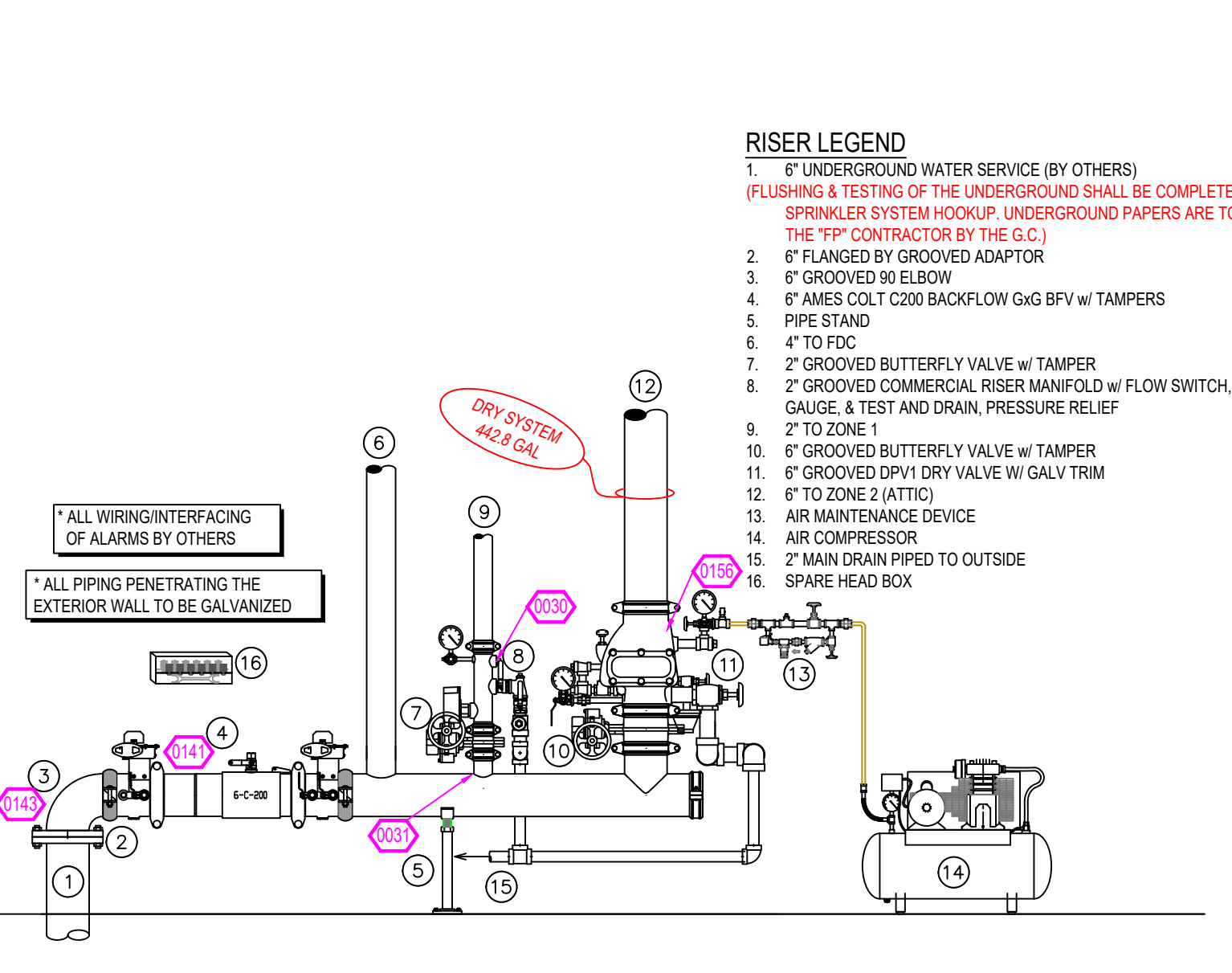


**LEVEL 1 - A FIRE SPRINKLER PLAN**  
SCALE= 1/8" : 1'-0"



**FLOW TEST INFO:**  
STATIC: 59 PSI  
RESID: 49 PSI  
FLOW: 950 GPM  
DATE: 10/27/22

\* FLOW TEST INFORMATION PROVIDED BY CITY OF CROSBY ON 5-17-23  
NOTE: DIFFERENCE IN ELEVATIONS ARE INCLUDED IN CALCULATIONS.



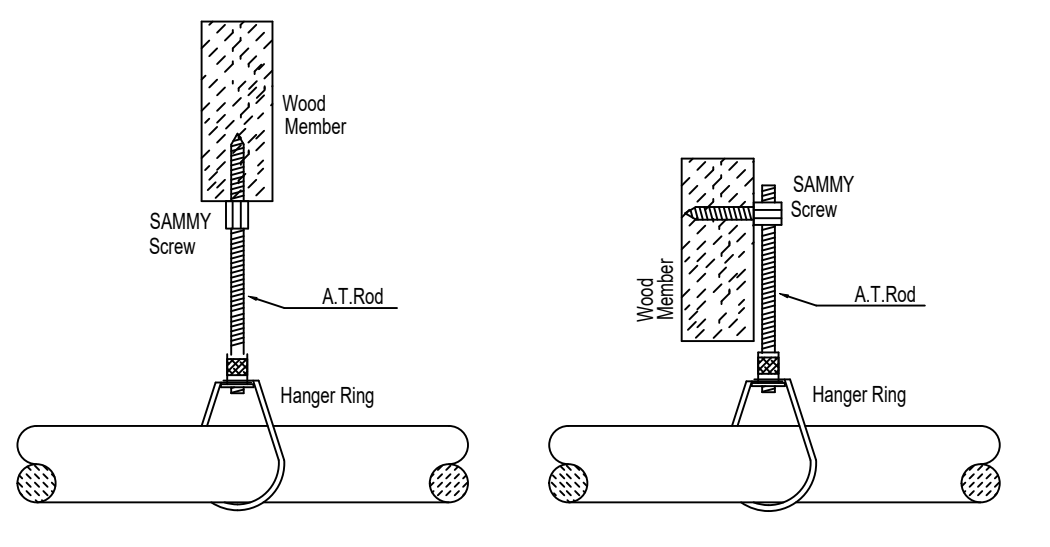
**FIRE SPRINKLER RISER**  
SCALE: 1/2" = 1'-0"

**NFPA 13 STEEL PIPE HANGER SPACING**  
(EXCEPT LIGHT WALL THIRD PIPING)

| NOMINAL SIZE INCHES | MAX SPACING FEET |
|---------------------|------------------|
| 1"                  | 12'-0"           |
| 1-1/4"              | 12'-0"           |
| 1-1/2"              | 15'-0"           |
| 2"                  | 15'-0"           |
| 2-1/2"              | 15'-0"           |
| 3"                  | 15'-0"           |
| 4" & LARGER         | 15'-0"           |

**NFPA 13 CPVC PIPE HANGER SPACING**

| NOMINAL SIZE INCHES | MAX SPACING FEET |
|---------------------|------------------|
| 3/4"                | 5'-0"            |
| 1"                  | 6'-0"            |
| 1-1/4"              | 6'-0"            |
| 1-1/2"              | 7'-0"            |
| 2"                  | 8'-0"            |
| 2-1/2"              | 9'-0"            |
| 3"                  | 10'-0"           |



**HANGER DETAILS**

**PIPE LEGEND**

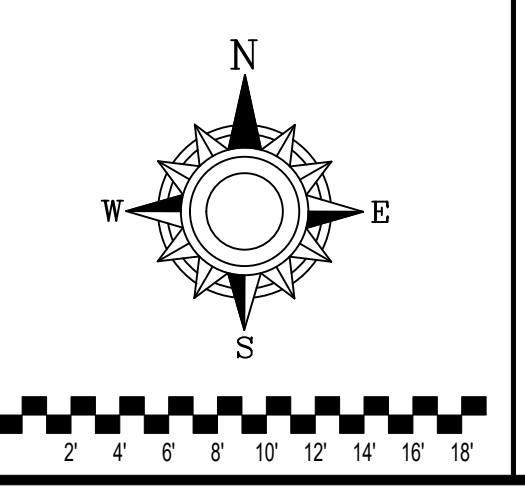
- BLACK STEEL FIRE SPRINKLER PIPING
- FIRE SPRINKLER FDC PIPING
- CPVC BLAZEMASTER SPRINKLER PIPING
- UNDERGROUND PIPING

**SPRINKLER HEAD LEGEND**

| SYM | CNT | POSITION | FINISH | TEMP | K    | INPT | SN     | MPS      | MODEL# | ESCUTCHEON    |
|-----|-----|----------|--------|------|------|------|--------|----------|--------|---------------|
| 113 |     | SIDEWALL | WHITE  | 155  | 4.00 | 1/2" | VK486  | VIKING   | VK486  | SEMI-RECESSED |
| 104 |     | PENDENT  | WHITE  | 155  | 4.90 | 1/2" | TY236  | TYCO     | UFJI   | SEMI-RECESSED |
| 103 |     | PENDENT  | WHITE  | 200  | 5.60 | 1/2" | TY323  | TYCO     | TY-FRB | SEMI-RECESSED |
| 10  |     | SIDEWALL | WHITE  | 200  | 5.60 | 1/2" | TY331  | TYCO     | TY-FRB | SEMI-RECESSED |
| 11  |     | SIDEWALL | WHITE  | 155  | 5.60 | 1/2" | RA1564 | RELIABLE | DH56   | SEMI-RECESSED |
| 10  |     | PENDENT  | WHITE  | 200  | 8.00 | 3/4" | TY4262 | TYCO     | EC-8C  | SEMI-RECESSED |
| 11  |     | PENDENT  | WHITE  | 200  | 8.00 | 3/4" | TY4332 | TYCO     | TY-FRB | SEMI-RECESSED |
| 162 |     | UPRIGHT  | BRASS  | 200  | 5.60 | 1/2" | TY3190 | TYCO     | AP     | N/A           |
| 37  |     | UPRIGHT  | BRASS  | 200  | 8.00 | 3/4" | TY4160 | TYCO     | BB1    | N/A           |
| 37  |     | UPRIGHT  | BRASS  | 200  | 5.60 | 1/2" | TY313  | TYCO     | TY-FRB | N/A           |
| 96  |     | UPRIGHT  | BRASS  | 200  | 8.00 | 3/4" | TY4180 | TYCO     | BB1    | N/A           |
| 17  |     | UPRIGHT  | BRASS  | 200  | 5.60 | 1/2" | TY3190 | TYCO     | AP     | N/A           |
| 28  |     | PENDENT  | BRASS  | 200  | 5.60 | 1/2" | TY323  | TYCO     | TY-FRB | N/A           |
| 2   |     | UPRIGHT  | BRASS  | 200  | 5.60 | 1/2" | TY313  | TYCO     | TY-FRB | N/A           |

774 TOTAL SPRINKLERS HEAD CABINET AND WRENCHES PROVIDED

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



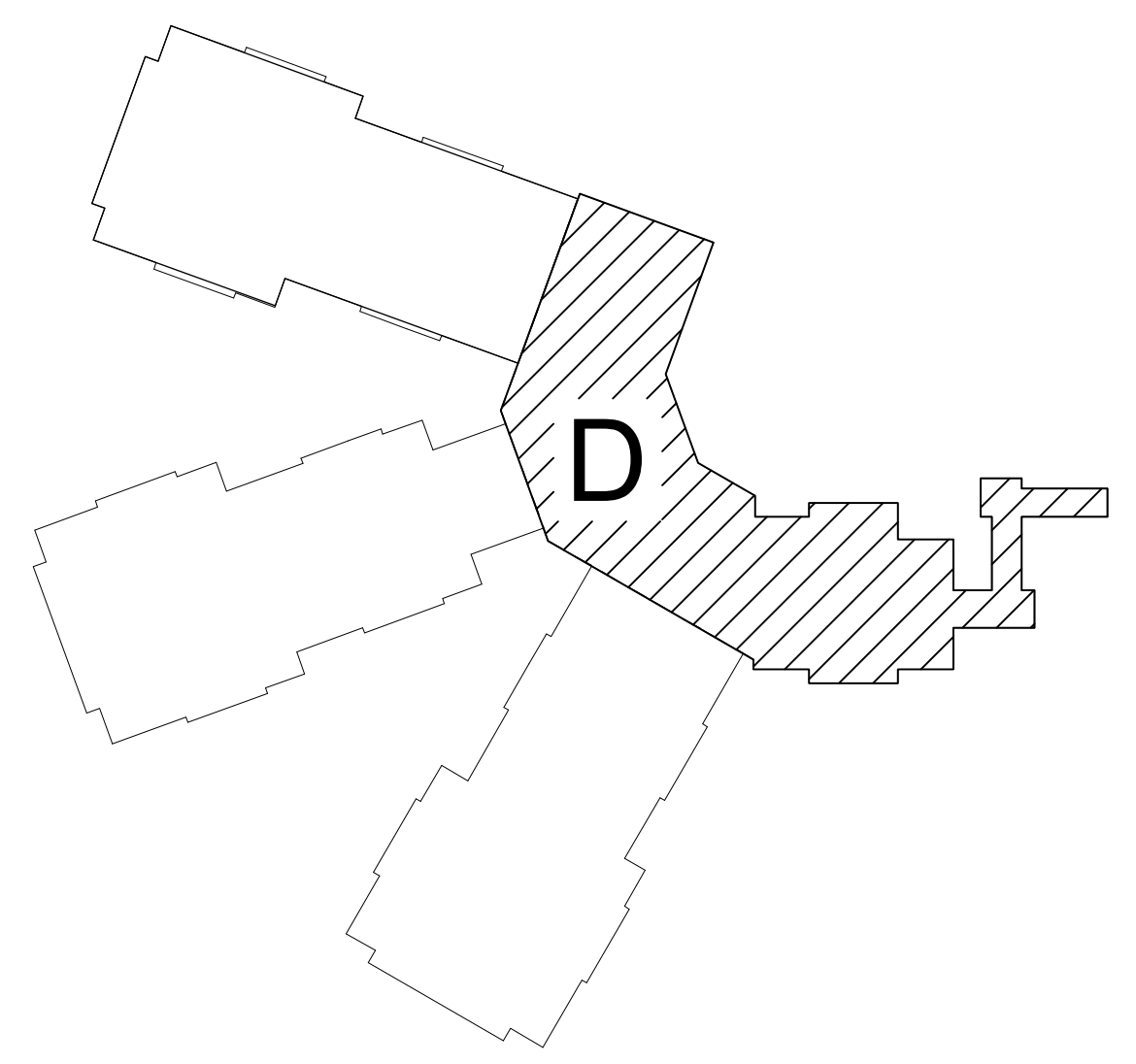
- GENERAL NOTES**
- SYSTEM INSTALLED PER NFPA-13 (2016 EDITION) AND STATE FIRE MARSHAL
  - ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED
  - MINIMUM PIPE SIZE SHALL BE 1" NOMINAL PIPE
  - ALL SCH-10 & LIGHTWALL PIPING HAS WELDED OUTLETS & GROOVED SHORT RADIUS FITTINGS
  - ALL WELDING PER NFPA-54(2021)
  - NO INSTALLATION OR FABRICATION TO BEGIN WITHOUT APPROVED SHOP DRAWINGS
  - ALL PIPE LOCATIONS ARE TO BE FIELD MEASURED PRIOR TO FABRICATION AND INSTALLATION BY SPRINKLER CONTRACTOR
  - ALL DIMENSIONS SHOWN ARE CENTER TO CENTER
  - HIGH TEMPERATURE HEADS ARE TO BE FIELD LOCATED WHERE REQUIRED
  - PROVIDE ON SPRINKLER HEAD CABINET W/ HEADS & HEAD WRENCH
  - HANGERS ARE TO BE U.L. LISTED AND M. APPROVED
  - ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISORY BY OWNER
  - OWNER'S RESPONSIBILITY TO PROVIDE ADEQUATE HEATING TO PREVENT WET SYSTEM PIPING FROM FREEZING.

| NO | REVISIONS | DATE | APPROVAL STAMPS |
|----|-----------|------|-----------------|
|    |           |      |                 |
|    |           |      |                 |

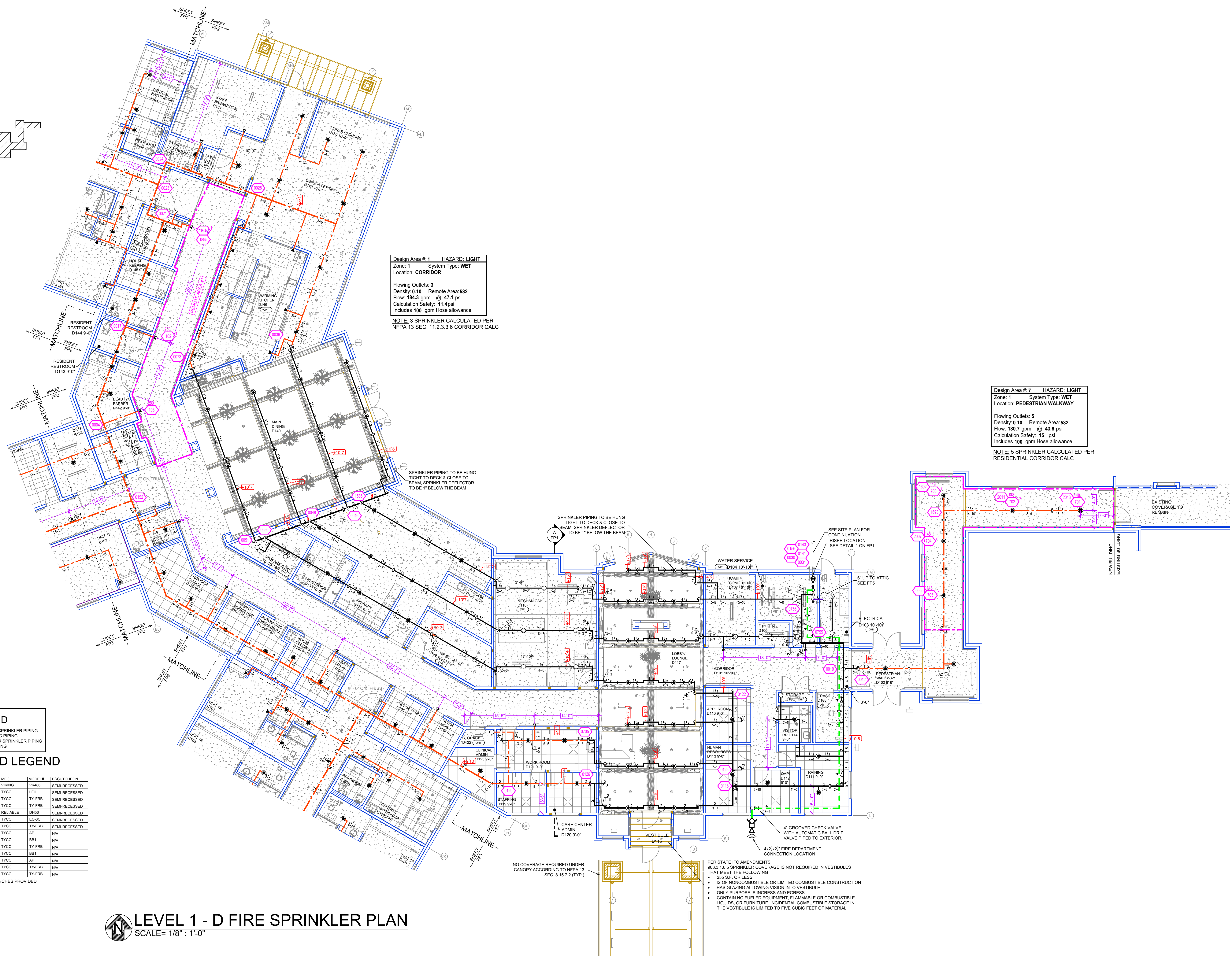
Drawing Title: **FIRE PROTECTION PLAN**

**HEARTWOOD**  
HEARTWOOD DRIVE  
CROSBY, MN 56441

Contract No: **C23-40**  
Drawing Date: 11-15-23  
Scale: 1/8" = 1'-0"  
Drawn By: BCJ  
Approval By: STATE FIRE MARSHAL DIV.  
SHEET NO: **FP 1 of 5**



KEY PLAN



Design Area # 1 HAZARD: LIGHT  
 Zone: 1 System Type: WET  
 Location: CORRIDOR  
 Flowing Outlets: 3  
 Density: 0.10 Remote Area: 532  
 Flow: 184.3 gpm @ 47.1 psi  
 Calculation Safety: 11.4 psi  
 Includes 100 gpm Hose allowance  
 NOTE: 3 SPRINKLER CALCULATED PER NFPA 13 SEC. 11.2.3.3.6 CORRIDOR CALC

Design Area # 7 HAZARD: LIGHT  
 Zone: 1 System Type: WET  
 Location: PEDESTRIAN WALKWAY  
 Flowing Outlets: 5  
 Density: 0.10 Remote Area: 532  
 Flow: 180.7 gpm @ 43.6 psi  
 Calculation Safety: 15 psi  
 Includes 100 gpm Hose allowance  
 NOTE: 5 SPRINKLER CALCULATED PER RESIDENTIAL CORRIDOR CALC

**PIPE LEGEND**

|   |                                   |
|---|-----------------------------------|
| — | BLACK STEEL FIRE SPRINKLER PIPING |
| — | FIRE SPRINKLER FDC PIPING         |
| — | CPVC BLAZEMASTER SPRINKLER PIPING |
| — | UNDERGROUND PIPING                |

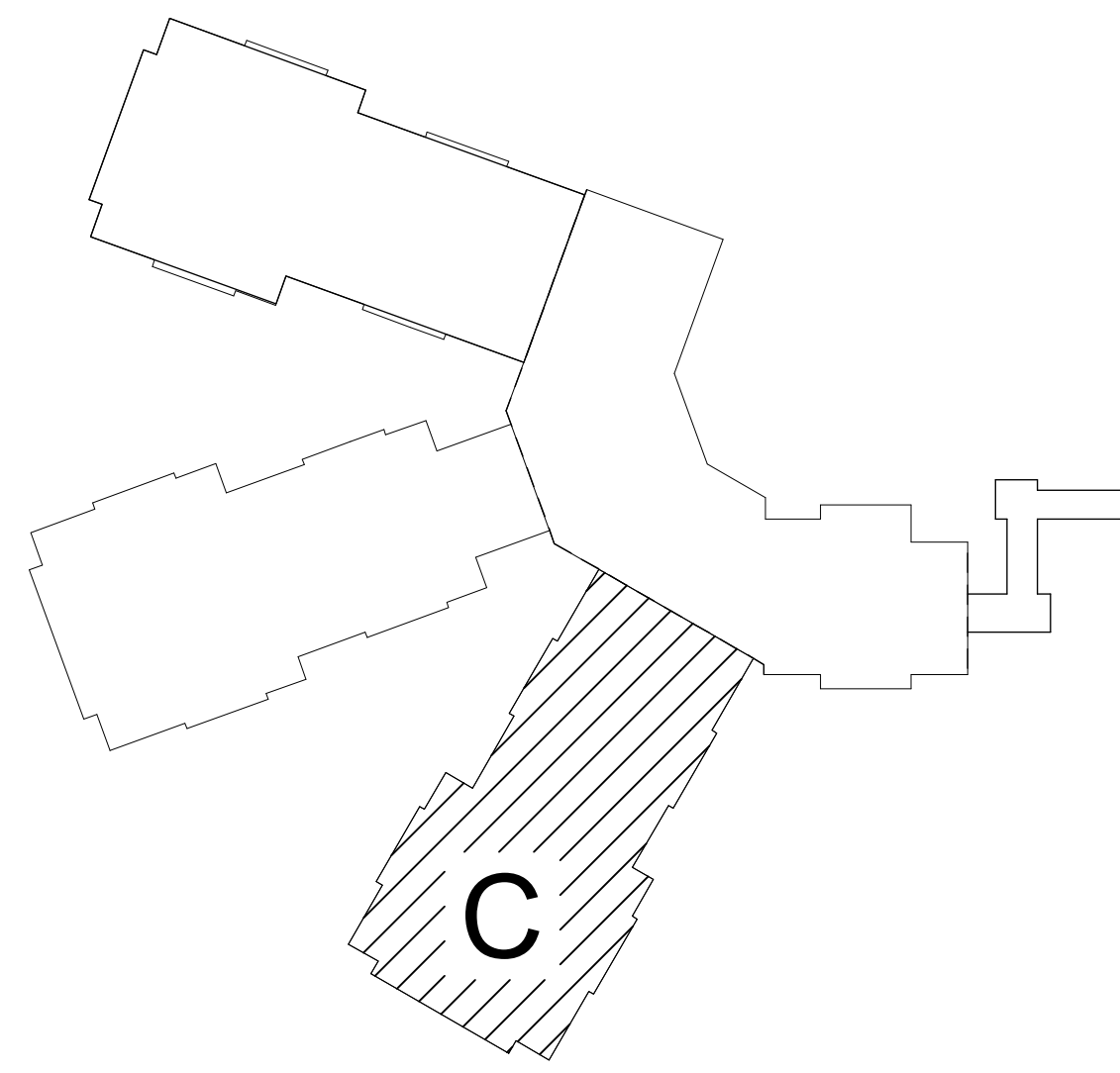
SPRINKLER HEAD LEGEND

| SYM | CNT | POSITION | FINISH | TEMP | K    | NPT  | SIN    | MFG.     | MODEL# | ESCU/TYPE/CNTR |
|-----|-----|----------|--------|------|------|------|--------|----------|--------|----------------|
| ◀   | 113 | SIDEWALL | WHITE  | 155  | 4.00 | 1/2" | VK486  | VKING    | VK486  | SEMI-RECESSED  |
| ●   | 104 | PENDENT  | WHITE  | 155  | 4.00 | 1/2" | TY2236 | TYCO     | LFJI   | SEMI-RECESSED  |
| ●   | 153 | PENDENT  | WHITE  | 200  | 5.00 | 1/2" | TY203  | TYCO     | TY-FRB | SEMI-RECESSED  |
| ◀   | 10  | SIDEWALL | WHITE  | 200  | 5.00 | 1/2" | TY3031 | TYCO     | TY-FRB | SEMI-RECESSED  |
| ◀   | 11  | SIDEWALL | WHITE  | 155  | 5.00 | 1/2" | RA1864 | RELIABLE | D406   | SEMI-RECESSED  |
| ●   | 10  | PENDENT  | WHITE  | 200  | 8.00 | 3/4" | TY4282 | TYCO     | EC-8C  | SEMI-RECESSED  |
| ◀   | 2   | PENDENT  | WHITE  | 200  | 8.00 | 3/4" | TY4332 | TYCO     | TY-FRB | SEMI-RECESSED  |
| ●   | 162 | UPRIGHT  | BRASS  | 200  | 5.00 | 1/2" | TY3190 | TYCO     | AP     | N/A            |
| ●   | 17  | UPRIGHT  | BRASS  | 200  | 8.00 | 3/4" | TY4180 | TYCO     | BB1    | N/A            |
| ●   | 17  | UPRIGHT  | BRASS  | 200  | 5.00 | 1/2" | TY313  | TYCO     | TY-FRB | N/A            |
| ●   | 16  | UPRIGHT  | BRASS  | 200  | 8.00 | 3/4" | TY4180 | TYCO     | BB1    | N/A            |
| ●   | 17  | UPRIGHT  | BRASS  | 200  | 5.00 | 1/2" | TY3190 | TYCO     | AP     | N/A            |
| ●   | 26  | PENDENT  | BRASS  | 200  | 5.00 | 1/2" | TY323  | TYCO     | TY-FRB | N/A            |
| ●   | 2   | UPRIGHT  | BRASS  | 200  | 5.00 | 1/2" | TY313  | TYCO     | TY-FRB | N/A            |

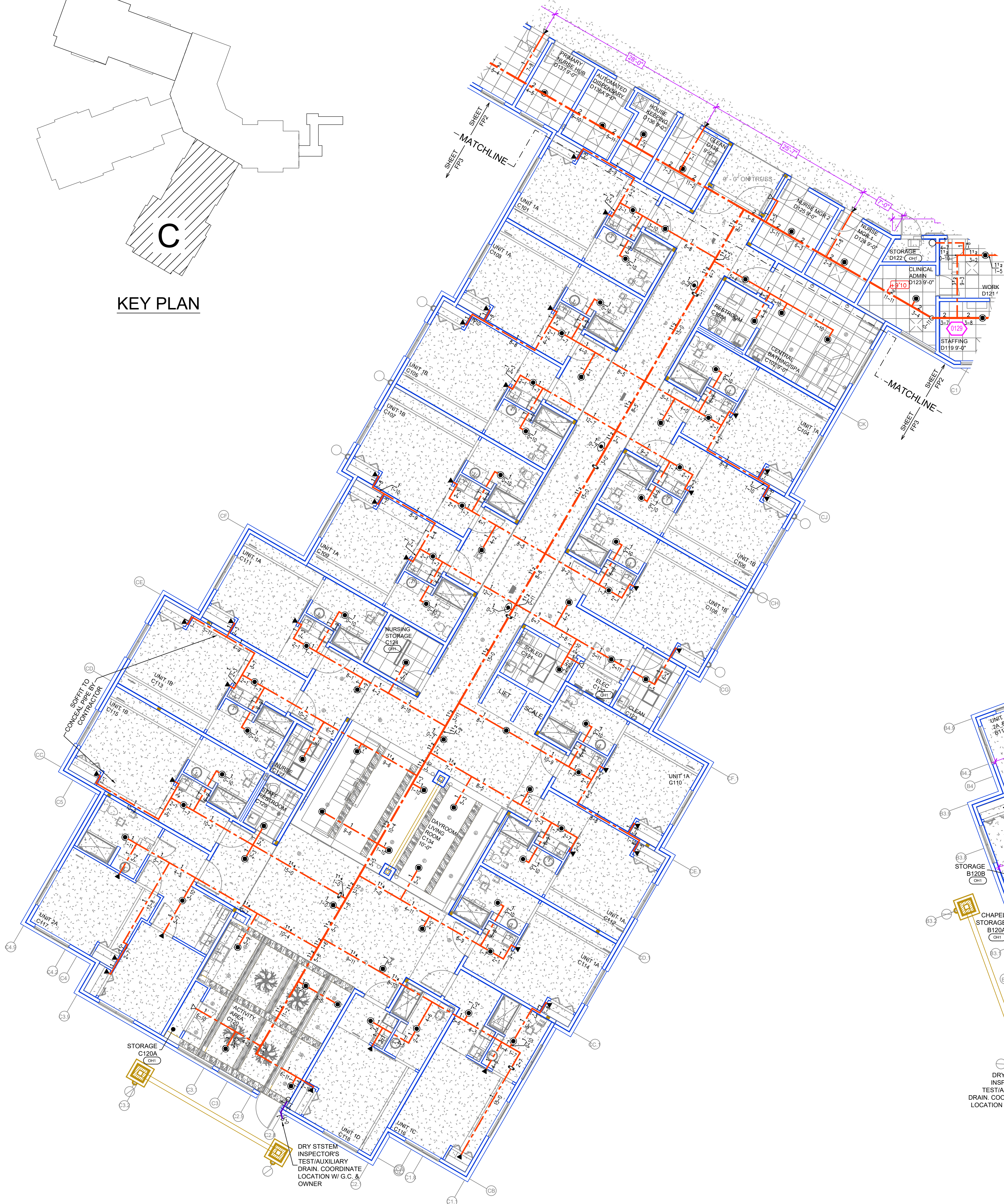
774 TOTAL SPRINKLERS  
 HEAD CABINET AND WRENCHES PROVIDED

LEVEL 1 - D FIRE SPRINKLER PLAN  
 SCALE = 1/8" = 1'-0"

|  |  |    |           |      |                 |  |  |
|--|--|----|-----------|------|-----------------|--|--|
|  | GENERAL NOTES  | NO | REVISIONS | DATE | APPROVAL STAMPS | Drawing Title: FIRE PROTECTION PLAN<br><b>HEARTWOOD</b><br>HEARTWOOD DRIVE<br>CROSBY, MN 56441 | Contract No.: C23-40<br>Drawing Date: 11/15/23<br>Scale: 1/8" = 1'-0"<br>Drawn By: BCJ<br>Approval By: STATE FIRE MARSHAL DIV.<br>SHEET NO.: FP 2 of 5 |
|  | 1. SYSTEM INSTALLED PER NFPA-13 (2016 EDITION) AND STATE FIRE MARSHAL<br>2. ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED<br>3. MINIMUM PIPE SIZE SHALL BE 1" NOMINAL PIPE<br>4. ALL SCH-40 & LIGHTWALL PIPING HAS WELDED OUTLETS & GROOVED SHORT RADIUS FITTINGS<br>5. ALL WELDING PER NFPA-514(2)<br>6. NO INSTALLATION OR FABRICATION TO BEGIN WITHOUT APPROVED SHOP DRAWINGS<br>7. ALL FIRE LOCATIONS ARE TO BE FIELD MEASURED PRIOR TO FABRICATION AND INSTALLATION BY SPRINKLER CONTRACTOR<br>8. ALL DIMENSIONS SHOWN ARE CENTER TO CENTER<br>9. HIGH TEMPERATURE HEADS ARE TO BE FIELD LOCATED WHERE REQUIRED<br>10. PROVIDE ON SPARE HEAD CABINET W/ HEADS & HEAD WRENCH<br>11. HANGERS ARE TO BE U.L. LISTED AND I.M. APPROVED<br>12. ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISORY BY OWNER<br>13. OWNER'S RESPONSIBILITY TO PROVIDE ADEQUATE HEATING TO PREVENT WET SYSTEM PIPING FROM FREEZING. |    |           |      |                 |  |  |
|  |  |    |           |      |                 |  |  |
|  |  |    |           |      |                 |  |  |



KEY PLAN

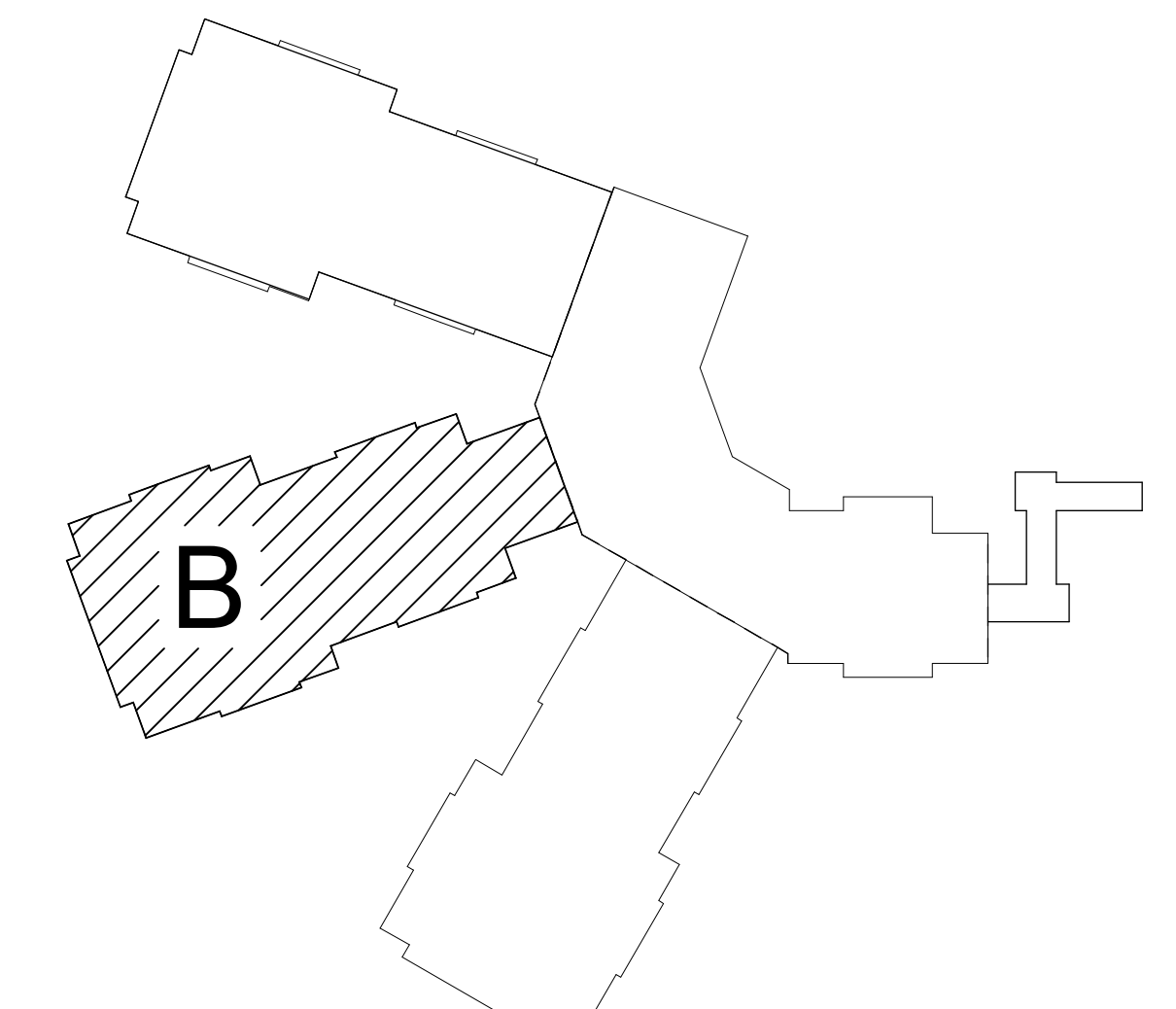


| PIPE LEGEND |                                   |
|-------------|-----------------------------------|
|             | BLACK STEEL FIRE SPRINKLER PIPING |
|             | FIRE SPRINKLER FDC PIPING         |
|             | CPVC BLAZEMASTER SPRINKLER PIPING |
|             | UNDERGROUND PIPING                |

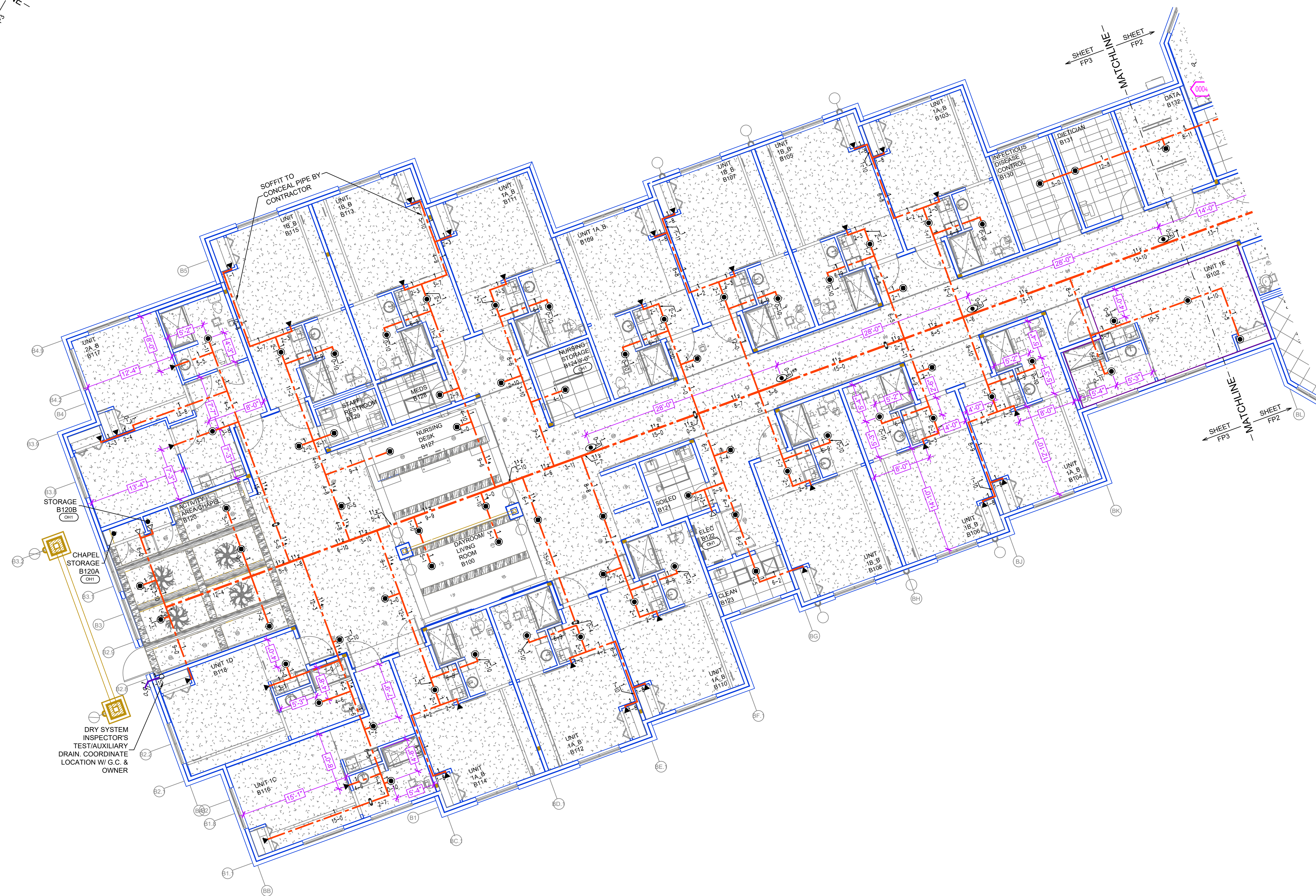
SPRINKLER HEAD LEGEND

| SYM | CNT | POSITION | FINISH | TEMP | K    | NPT  | SIN    | MFG      | MODEL# | ESCUTCHEON    |
|-----|-----|----------|--------|------|------|------|--------|----------|--------|---------------|
| 113 |     | SIDEWALL | WHITE  | 155  | 4.00 | 1/2" | VK486  | VIRING   | VK486  | SEMI-RECESSED |
| 104 |     | PENDENT  | WHITE  | 155  | 4.00 | 1/2" | TY228  | TYCO     | LJF1   | SEMI-RECESSED |
| 153 |     | PENDENT  | WHITE  | 200  | 5.00 | 1/2" | TY303  | TYCO     | TY-FRB | SEMI-RECESSED |
| 10  |     | SIDEWALL | WHITE  | 200  | 5.00 | 1/2" | TY3331 | TYCO     | TY-FRB | SEMI-RECESSED |
| 11  |     | SIDEWALL | WHITE  | 155  | 5.00 | 1/2" | RA1964 | RELIABLE | DH56   | SEMI-RECESSED |
| 12  |     | PENDENT  | WHITE  | 200  | 8.00 | 3/4" | TY4282 | TYCO     | EC-8C  | SEMI-RECESSED |
| 12  |     | PENDENT  | WHITE  | 200  | 8.00 | 3/4" | TY4332 | TYCO     | TY-FRB | SEMI-RECESSED |
| 102 |     | UPRIGHT  | BRASS  | 200  | 5.00 | 1/2" | TY3190 | TYCO     | AP     | N/A           |
| 31  |     | UPRIGHT  | BRASS  | 200  | 8.00 | 3/4" | TY4180 | TYCO     | BB1    | N/A           |
| 37  |     | UPRIGHT  | BRASS  | 200  | 5.00 | 1/2" | TY313  | TYCO     | TY-FRB | N/A           |
| 96  |     | UPRIGHT  | BRASS  | 200  | 8.00 | 3/4" | TY4180 | TYCO     | BB1    | N/A           |
| 17  |     | UPRIGHT  | BRASS  | 200  | 5.00 | 1/2" | TY3190 | TYCO     | AP     | N/A           |
| 28  |     | PENDENT  | BRASS  | 200  | 5.00 | 1/2" | TY323  | TYCO     | TY-FRB | N/A           |
| 2   |     | UPRIGHT  | BRASS  | 200  | 5.00 | 1/2" | TY313  | TYCO     | TY-FRB | N/A           |

774 TOTAL SPRINKLERS HEAD CABINET AND WRENCHES PROVIDED



KEY PLAN



LEVEL 1 - C FIRE SPRINKLER PLAN  
SCALE= 1/8" = 1'-0"

LEVEL 1 - B FIRE SPRINKLER PLAN  
SCALE= 1/8" = 1'-0"

|  | <p>GENERAL NOTES</p> <ol style="list-style-type: none"> <li>SYSTEM INSTALLED PER NFPA-13 (2016 EDITION) AND STATE FIRE MARSHAL</li> <li>ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED</li> <li>MINIMUM PIPE SIZE SHALL BE 1" NOMINAL PIPE</li> <li>ALL SCH-40 &amp; LIGHTWALL PIPING HAS WELDED OUTLETS &amp; GROOVED SHORT RADIUS FITTINGS</li> <li>ALL WELDING PER NFPA-514(2)</li> <li>NO INSTALLATION OR FABRICATION TO BEGAIN WITHOUT APPROVED SHOP DRAWINGS</li> <li>ALL PIPE LOCATIONS ARE TO BE FIELD MEASURED PRIOR TO FABRICATION AND INSTALLATION BY SPRINKLER CONTRACTOR</li> <li>ALL DIMENSIONS SHOWN ARE CENTER TO CENTER</li> <li>HIGH TEMPERATURE HEADS ARE TO BE FIELD LOCATED WHERE REQUIRED</li> <li>PROVIDE ON SPRINKLER HEAD CABINET W/ HEADS &amp; 1 HEAD WRENCH</li> <li>MAKERS ARE TO BE U.L. LISTED AND I.M. APPROVED</li> <li>ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISORY BY OWNER</li> <li>OWNER'S RESPONSIBILITY TO PROVIDE ADEQUATE HEATING TO PREVENT WET SYSTEM PIPING FROM FREEZING.</li> </ol> | <table border="1"> <thead> <tr> <th>NO</th> <th>REVISIONS</th> <th>DATE</th> <th>APPROVAL STAMPS</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> | NO   | REVISIONS       | DATE | APPROVAL STAMPS |  |  |  |  | <p>Drawing Title: FIRE PROTECTION PLAN</p> <p><b>HEARTWOOD</b><br/>HEARTWOOD DRIVE<br/>CROSBY, MN 56441</p> | <p>Contract No. C23-40</p> <p>Drawing Date: 11/15/23</p> <p>Scale: 1/8" = 1'-0"</p> <p>Drawn By: BCJ</p> <p>Approval By: STATE FIRE MARSHAL DIV.</p> <p>SHEET NO. FP 3 of 5</p> |
|--|--|---|------|-----------------|------|-----------------|--|--|--|--|---|---|
|  | NO   | REVISIONS   | DATE | APPROVAL STAMPS |      |                 |  |  |  |  |   |   |
|  |  |   |      |                 |      |                 |  |  |  |  |   |   |

**Design Area # 12 HAZARD LIGHT**  
 Zone: 2 System Type: DRY  
 Location: ATTIC RIDGE B  
 Flowing Outlets: 9  
 Density: 0.10 Remote Area: 2871  
 Flow: 312.2 gpm @ 52 psi  
 Calculation Safety: 5.8 psi  
 Includes 100 gpm Hose allowance  
 NOTE:  
 7 BB1 AND 2 AP SPRINKLERS CALCULATED PER MANUFACTURER'S CUT SHEET

**Design Area # 9 HAZARD LIGHT**  
 Zone: 2 System Type: DRY  
 Location: ATTIC RIDGE A  
 Flowing Outlets: 9  
 Density: 0.10 Remote Area: 2871  
 Flow: 415.2 gpm @ 50.8 psi  
 Calculation Safety: 6 psi  
 Includes 100 gpm Hose allowance  
 NOTE:  
 7 BB1 AND 2 AP SPRINKLERS CALCULATED PER MANUFACTURER'S CUT SHEET

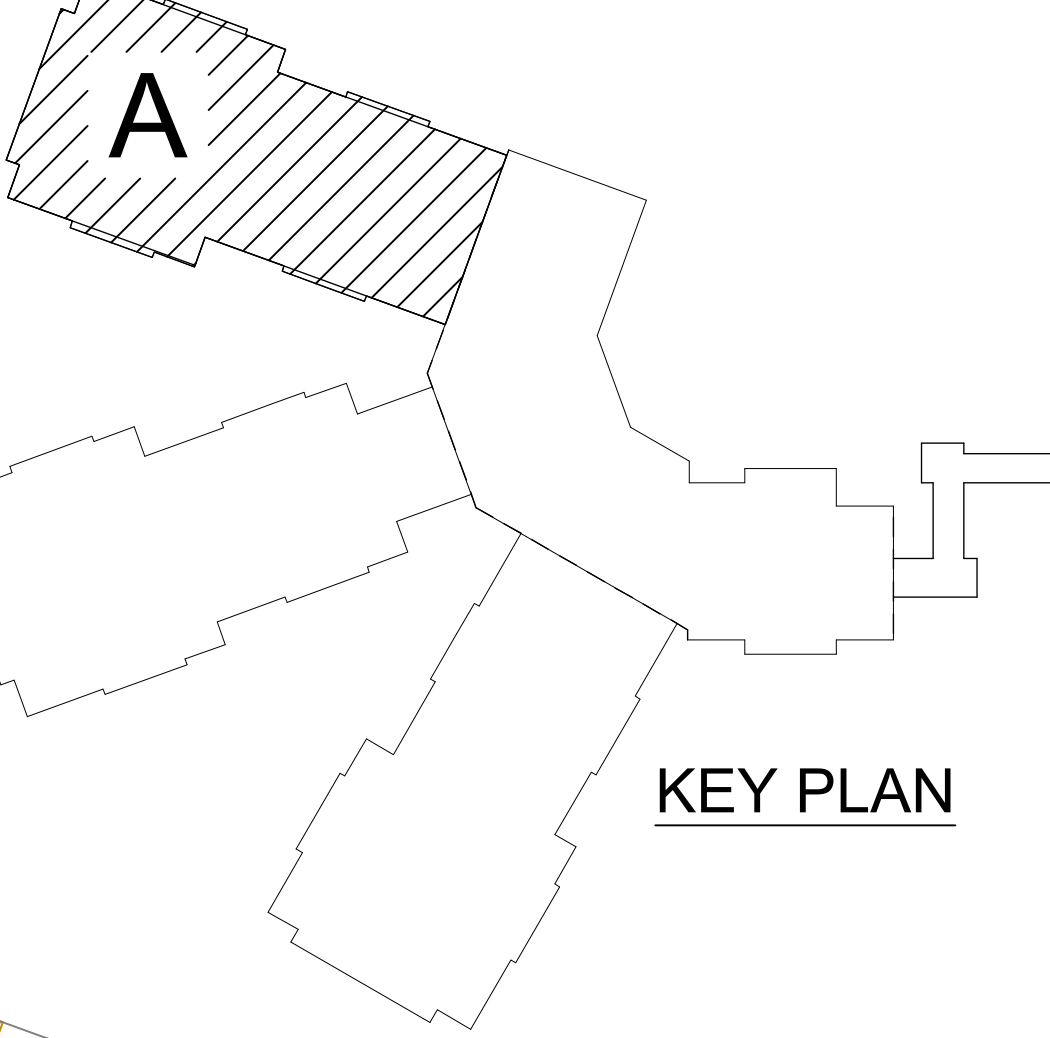
**Design Area # 10 HAZARD LIGHT**  
 Zone: 2 System Type: DRY  
 Location: ATTIC END  
 Flowing Outlets: 19  
 Density: 0.10 Remote Area: 1954  
 Flow: 442.8 gpm @ 50.5 psi  
 Calculation Safety: 6.1 psi  
 Includes 100 gpm Hose allowance  
 NOTE:  
 1950 SF CALCULATION PER MANUFACTURER'S CUT SHEET

**Design Area # 8 HAZARD LIGHT**  
 Zone: 2 System Type: DRY  
 Location: ATTIC MIDDLE  
 Flowing Outlets: 27  
 Density: 0.10 Remote Area: 1954  
 Flow: 614.4 gpm @ 46.8 psi  
 Calculation Safety: 7.8 psi  
 Includes 100 gpm Hose allowance  
 NOTE:  
 1950 SF CALCULATION PER MANUFACTURER'S CUT SHEET

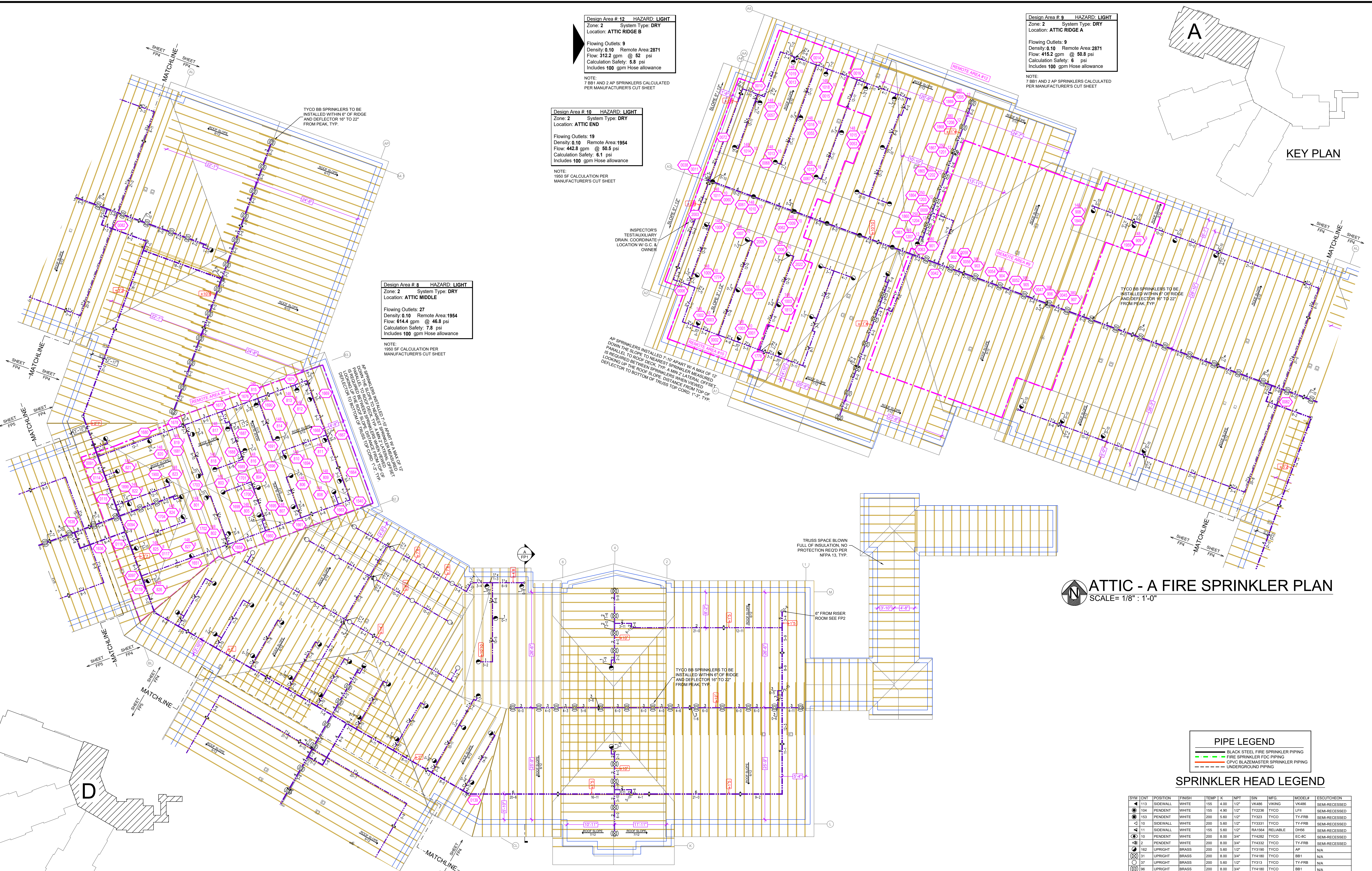
AP SPRINKLERS SHALL BE INSTALLED 7'-10" APART WITH A MAX OF 12" PARALLEL TO ROOF DECK. TYP. A MIN. 1/2" LATERAL OFFSET IS REQUIRED BETWEEN SPRINKLERS WHEN VIEWED FROM ABOVE. LOOKING UP THE ROOF SLOPE. DISTANCE FROM TOP OF DEFLECTOR TO BOTTOM OF TRUSS TOP CHORD. 1'-3" TYP.

INSPECTOR'S TEST/AUXILIARY DRAIN COORDINATE LOCATION W/ G.C. & OWNER

TYCO BB SPRINKLERS TO BE INSTALLED WITHIN 6" OF RIDGE AND DEFLECTOR 16" TO 22" FROM PEAK, TYP.



**KEY PLAN**



**ATTIC - A FIRE SPRINKLER PLAN**  
 SCALE= 1/8" : 1'-0"

**PIPE LEGEND**

- BLACK STEEL FIRE SPRINKLER PIPING
- FIRE SPRINKLER FDC PIPING
- CPVC BLAZEMASTER SPRINKLER PIPING
- UNDERGROUND PIPING

**SPRINKLER HEAD LEGEND**

| SYM | CONT | POSITION | FINISH | TEMP | K    | NPT  | SIN    | USFG     | MODEL# | ESLDT/CHECK   |
|-----|------|----------|--------|------|------|------|--------|----------|--------|---------------|
| 113 | ▲    | SIDEWALL | WHITE  | 155  | 4.00 | 1/2" | VK486  | VIKING   | VK486  | SEMI-RECESSED |
| 104 | ●    | PENDENT  | WHITE  | 155  | 4.00 | 1/2" | TY236  | TYCO     | LF11   | SEMI-RECESSED |
| 153 | ●    | PENDENT  | WHITE  | 200  | 5.60 | 1/2" | TY323  | TYCO     | TY-FRB | SEMI-RECESSED |
| 10  | ◀    | SIDEWALL | WHITE  | 200  | 5.60 | 1/2" | TY331  | TYCO     | TY-FRB | SEMI-RECESSED |
| 11  | ◀    | SIDEWALL | WHITE  | 155  | 5.60 | 1/2" | RA184  | RELIABLE | DR56   | SEMI-RECESSED |
| 10  | ◀    | PENDENT  | WHITE  | 200  | 8.00 | 3/4" | TY482  | TYCO     | EC-AC  | SEMI-RECESSED |
| 12  | ◀    | PENDENT  | WHITE  | 200  | 8.00 | 3/4" | TY432  | TYCO     | TY-FRB | SEMI-RECESSED |
| 182 | ●    | UPRIGHT  | BRASS  | 200  | 5.60 | 1/2" | TY3190 | TYCO     | AP     | N/A           |
| 31  | ●    | UPRIGHT  | BRASS  | 200  | 8.00 | 3/4" | TY4180 | TYCO     | BB1    | N/A           |
| 17  | ●    | UPRIGHT  | BRASS  | 200  | 5.60 | 1/2" | TY313  | TYCO     | TY-FRB | N/A           |
| 16  | ●    | UPRIGHT  | BRASS  | 200  | 8.00 | 3/4" | TY4180 | TYCO     | BB1    | N/A           |
| 17  | ●    | UPRIGHT  | BRASS  | 200  | 5.60 | 1/2" | TY3190 | TYCO     | AP     | N/A           |
| 26  | ●    | PENDENT  | BRASS  | 200  | 5.60 | 1/2" | TY323  | TYCO     | TY-FRB | N/A           |
| 2   | ●    | UPRIGHT  | BRASS  | 200  | 5.60 | 1/2" | TY313  | TYCO     | TY-FRB | N/A           |

774 TOTAL SPRINKLERS  
 HEAD CABINET AND WRENCHES PROVIDED

**KEY PLAN**

**ATTIC - D FIRE SPRINKLER PLAN**  
 SCALE= 1/8" : 1'-0"

**GENERAL NOTES**

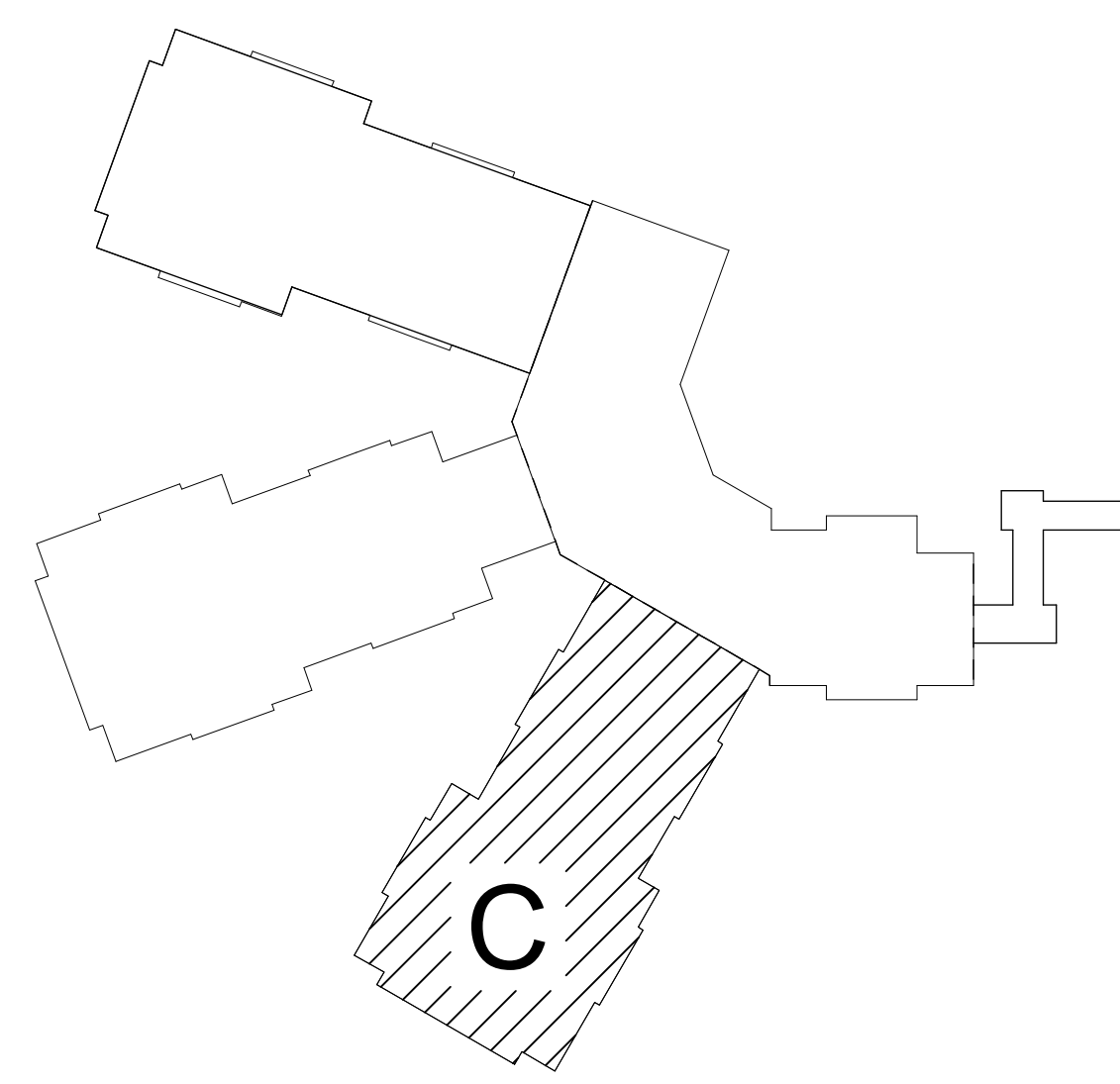
- SYSTEM INSTALLED PER NFPA-13 (2016 EDITION) AND STATE FIRE MARSHAL
- ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED
- MINIMUM PIPE SIZE SHALL BE 1" NOMINAL PIPE
- ALL SCH-40 & LIGHTWALL PIPING HAS WELDED OUTLETS & GROOVED SHORT RADIUS FITTINGS
- ALL WELDING PER NFPA-514 (2)
- NO INSTALLATION OR FABRICATION TO BEGIN WITHOUT APPROVED SHOP DRAWINGS
- ALL PIPE LOCATIONS ARE TO BE FIELD MEASURED PRIOR TO FABRICATION AND INSTALLATION BY SPRINKLER CONTRACTOR
- ALL DIMENSIONS SHOWN ARE CENTER TO CENTER
- HIGH TEMPERATURE HEADS ARE TO BE FIELD LOCATED WHERE REQUIRED
- PROVIDE ON SHORE HEAD CABINET W/ HEADS & HEAD WRENCH
- HANGERS ARE TO BE U.L. LISTED AND F.A. APPROVED
- ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISORY BY OWNER
- OWNER'S RESPONSIBILITY TO PROVIDE ADEQUATE HEATING TO PREVENT WET SYSTEM PIPING FROM FREEZING.

| NO | REVISIONS | DATE | APPROVAL STAMPS |
|----|-----------|------|-----------------|
|    |           |      |                 |

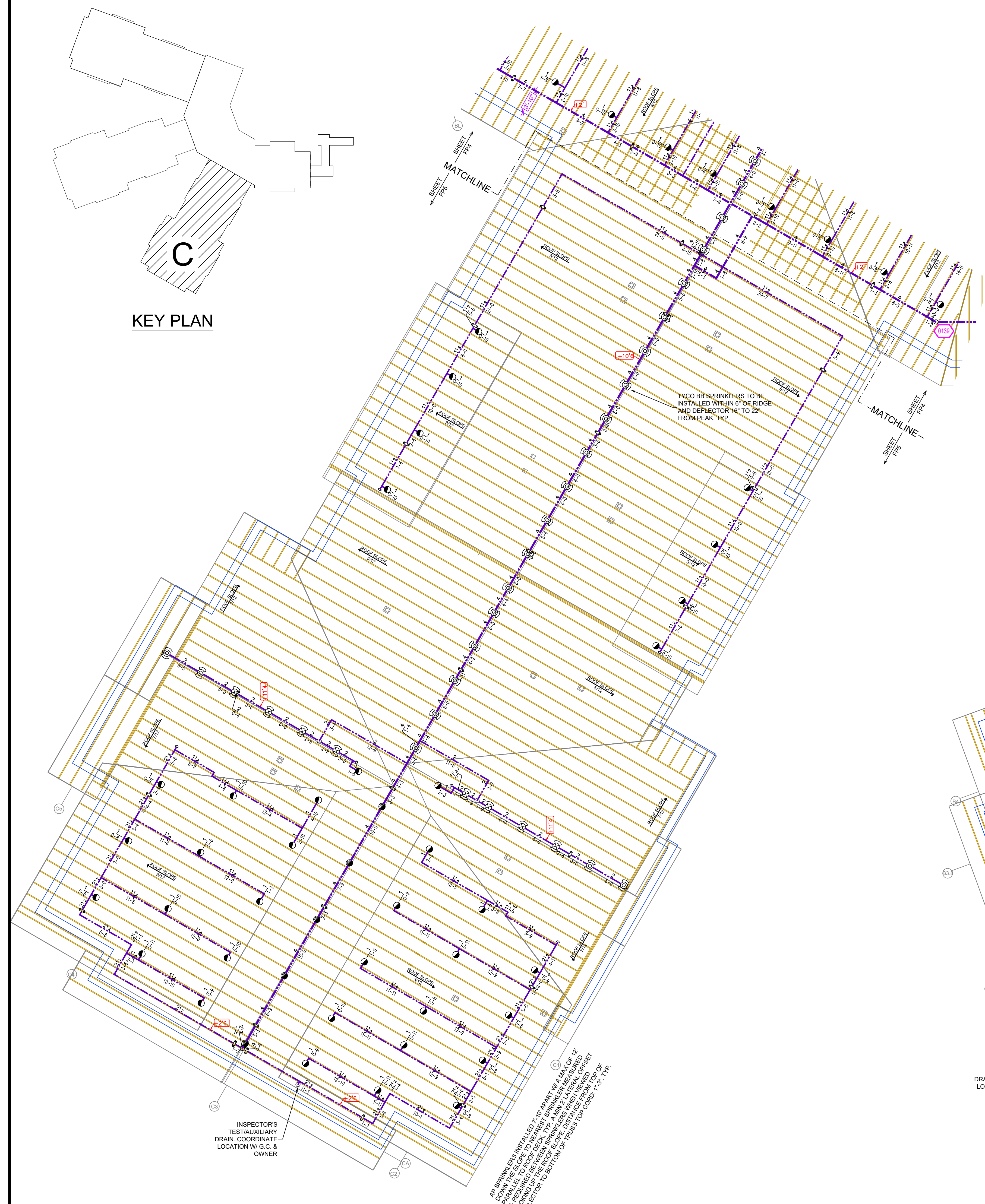
Drawing Title: **FIRE PROTECTION PLAN**

**HEARTWOOD**  
 HEARTWOOD DRIVE  
 CROSBY, MN 56441

Contract No: **C23-40**  
 Drawing Date: 11/15/23  
 Scale: 1/8" = 1'-0"  
 Drawn By: BCJ  
 Approval By: STATE FIRE MARSHAL DIV.  
 SHEET NO: **FP 4 of 5**



KEY PLAN



**ATTIC - C FIRE SPRINKLER PLAN**  
SCALE= 1/8" : 1'-0"

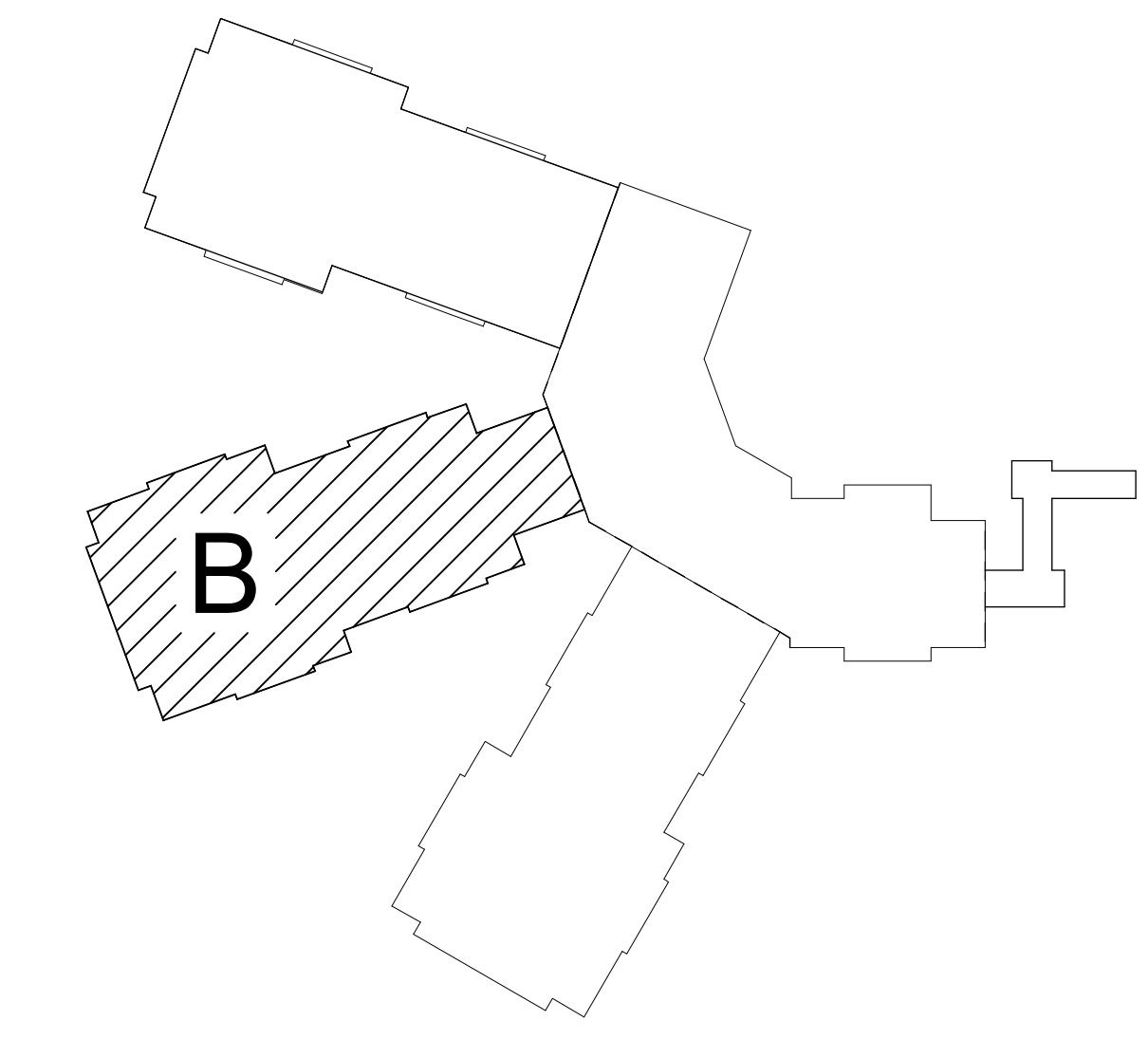
**PIPE LEGEND**

- BLACK STEEL FIRE SPRINKLER PIPING
- FIRE SPRINKLER FDC PIPING
- CPVC BLAZEMASTER SPRINKLER PIPING
- UNDERGROUND PIPING

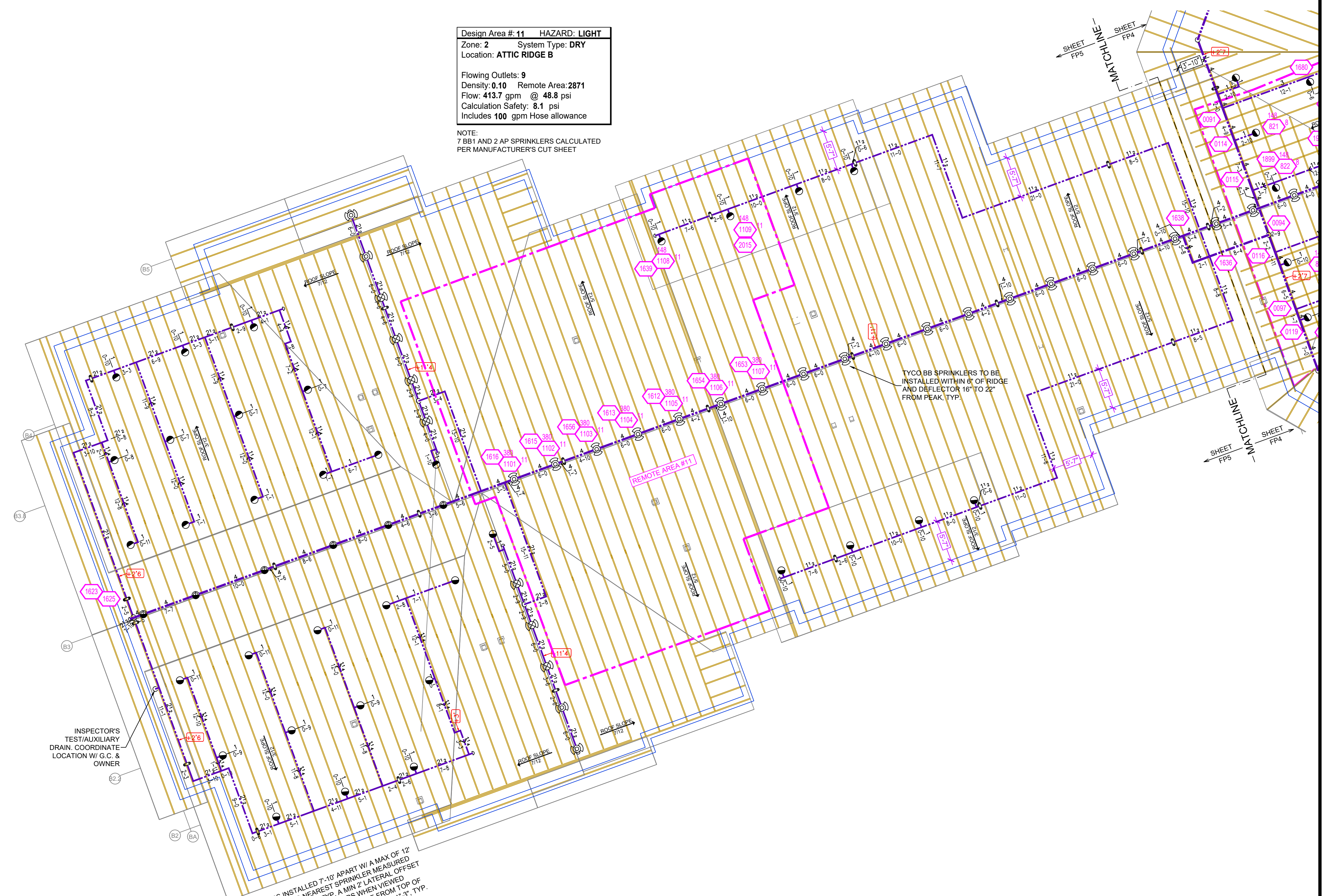
**SPRINKLER HEAD LEGEND**

| SYM | CNT | POSITION | FINISH | TEMP | K    | NPT  | SIN   | MFG      | MODEL# | ESCUTCHEON    |
|-----|-----|----------|--------|------|------|------|-------|----------|--------|---------------|
| 113 | 1   | SIDEWALL | WHITE  | 155  | 4.00 | 1/2" | VK486 | VKING    | VK486  | SEMI-RECESSED |
| 154 | 1   | PENDENT  | WHITE  | 155  | 4.00 | 1/2" | TY226 | TYCO     | LFS    | SEMI-RECESSED |
| 153 | 1   | PENDENT  | WHITE  | 200  | 5.00 | 1/2" | TY323 | TYCO     | TY-FRB | SEMI-RECESSED |
| 110 | 1   | SIDEWALL | WHITE  | 200  | 5.00 | 1/2" | TY331 | TYCO     | TY-FRB | SEMI-RECESSED |
| 111 | 1   | SIDEWALL | WHITE  | 155  | 5.00 | 1/2" | RA164 | RELIABLE | DH56   | SEMI-RECESSED |
| 10  | 1   | PENDENT  | WHITE  | 200  | 8.00 | 3/4" | TY482 | TYCO     | EC-8C  | SEMI-RECESSED |
| 48  | 2   | PENDENT  | WHITE  | 200  | 8.00 | 3/4" | TY432 | TYCO     | TY-FRB | SEMI-RECESSED |
| 162 | 1   | UPRIGHT  | BRASS  | 200  | 5.00 | 1/2" | TY150 | TYCO     | AP     | N/A           |
| 31  | 1   | UPRIGHT  | BRASS  | 200  | 8.00 | 3/4" | TY480 | TYCO     | BB1    | N/A           |
| 37  | 1   | UPRIGHT  | BRASS  | 200  | 5.00 | 1/2" | TY313 | TYCO     | TY-FRB | N/A           |
| 98  | 1   | UPRIGHT  | BRASS  | 200  | 8.00 | 3/4" | TY480 | TYCO     | BB1    | N/A           |
| 17  | 1   | UPRIGHT  | BRASS  | 200  | 5.00 | 1/2" | TY319 | TYCO     | AP     | N/A           |
| 28  | 1   | PENDENT  | BRASS  | 200  | 5.00 | 1/2" | TY323 | TYCO     | TY-FRB | N/A           |
| 2   | 1   | UPRIGHT  | BRASS  | 200  | 5.00 | 1/2" | TY313 | TYCO     | TY-FRB | N/A           |

774 TOTAL SPRINKLERS  
HEAD CABINET AND WRENCHES PROVIDED



KEY PLAN



**ATTIC - B FIRE SPRINKLER PLAN**  
SCALE= 1/8" : 1'-0"

Design Area # 11 HAZARD: LIGHT  
Zone: 2 System Type: DRY  
Location: ATTIC RIDGE B

Flowing Outlets: 9  
Density: 0.10 Remote Area 2871  
Flow: 413.7 gpm @ 48.8 psi  
Calculation Safety: 8.1 psi  
Includes 100 gpm hose allowance

NOTE:  
7 BB1 AND 2 AP SPRINKLERS CALCULATED  
PER MANUFACTURER'S CUT SHEET

AP SPRINKLERS INSTALLED 7'-10" APART WITH A MAX OF 12" DOWN THE SLOPE TO NEAREST SPRINKLER HEAD. OFFSET PARALLEL TO ROOF DECK TYP. A MIN 6" LATERAL OFFSET IS REQUIRED BETWEEN SPRINKLERS WHEN VIEWED FROM TOP OF LOOKING UP THE ROOF SLOPE. DISTANCE FROM TOP OF DEFLECTOR TO BOTTOM OF TRUSS TOP CHORD: 1'-3" TYP.

INSPECTOR'S TEST/AUXILIARY DRAIN. COORDINATE LOCATION W/ G.C. & OWNER

TYCO BS SPRINKLERS TO BE INSTALLED WITHIN 6" OF RIDGE AND DEFLECTOR 16" TO 22" FROM PEAK TYP.

**GENERAL NOTES**

- SYSTEM INSTALLED PER NFPA-13 (2016 EDITION) AND STATE FIRE MARSHAL
- ALL EQUIPMENT FOR THIS SYSTEM SHALL BE U.L. LISTED
- MINIMUM PIPE SIZE SHALL BE 1" NOMINAL PIPE
- ALL SCH 10 & LIGHTWALL PIPING HAS WELDED OUTLETS & GROOVED SHORT RADIUS FITTINGS
- ALL WELDING PER NFPA 518 & 519
- NO INSTALLATION OR FABRICATION TO BEGIN WITHOUT APPROVED SHOP DRAWINGS
- ALL PIPE LOCATIONS ARE TO BE FIELD MEASURED PRIOR TO FABRICATION AND INSTALLATION BY SPRINKLER CONTRACTOR
- ALL DIMENSIONS SHOWN ARE CENTER TO CENTER
- HIGH TEMPERATURE HEADS ARE TO BE FIELD LOCATED WHERE REQUIRED
- PROVIDE OR SPARE HEAD CABINET W/8 HEADS & HEAD WRENCH
- HANGERS ARE TO BE U.L. LISTED AND F.M. APPROVED
- ELECTRICAL WIRING, ALARM, DETECTION AND SUPERVISORY BY OWNER
- OWNER'S RESPONSIBILITY TO PROVIDE ADEQUATE HEATING TO PREVENT WET SYSTEM PIPING FROM FREEZING.

| NO | REVISIONS | DATE | APPROVAL STAMPS |
|----|-----------|------|-----------------|
|    |           |      |                 |
|    |           |      |                 |

Drawing Title: FIRE PROTECTION PLAN

**HEARTWOOD**  
HEARTWOOD DRIVE  
CROSBY, MN 56441

Contract No. **C23-40**  
Drawing Date: 11/15/23  
Scale: 1/8" = 1'-0"  
Drawn By: BCJ  
Approval By: STATE FIRE MARSHAL DIV.  
SHEET NO. **FP 5 of 5**