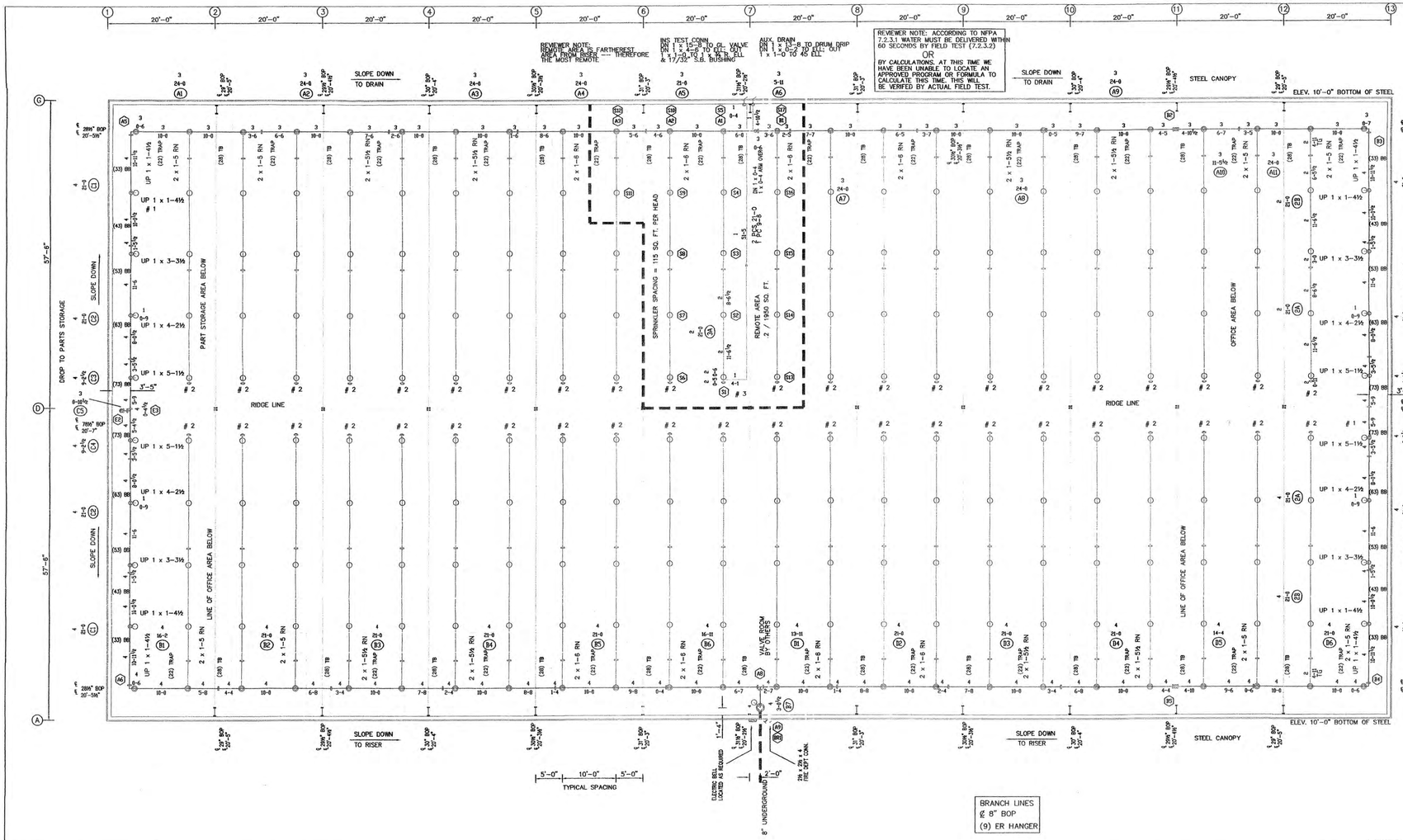


BRANCH LINES
@ 8" BOP
(9) ER HANGER

EARTHQUAKE PROTECTION NOTES:

1. 4 WAY BRACE INSTALLED WITHIN 2' OF TOP OF RISER
2. LATERAL BRACE TO BE WITHIN 3' OF END OF X-MAINS
3. LONGITUDINAL BRACE TO BE WITHIN 40' OF END OF MAIN
4. LATERAL AND LONGITUDINAL BRACE TO BE WITHIN 2' OF CHANGE OF DIRECTION OF PIPING.
5. RISERS TO HAVE FLEXIBLE COUPLINGS AT THE TOP AND BOTTOM OF THE RISERS.
6. LOCATION FOR SEISMIC BRACING IS IN ACCORDANCE WITH NFPA AND FM STANDARDS --- LOCATIONS ON DRAWINGS MAY BE SHOWN FOR CLARITY REASONS ONLY.
7. WORST CASE EQ CALCULATIONS PROVIDED.

EQ BRACE CALC: (TYPICAL)

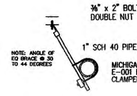
2 (TW) x 42' x 4.22 LBS x .5 = 88.62
4 (TW) x 21' x 11.78 LBS x .5 = 123.38
TOTAL = 212.0 LBS. x 115% = 243.8

BRACE INFORMATION

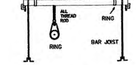
LENGTH OF BRACE	MAX. 13'-0"
DIA. & TYPE OF BRACE	1" SCH. 40 PIPE
ANGLE OF BRACE	30-45 DEGREE
LEAST RADIUS OF GYRATION	.42
L/R VALUE	200
MAX. HORIZONAL LOAD	1063 LB

EARTHQUAKE CALCS.

CONNECT TO BOTTOM OF TOP CHORD OF TRUSS



EARTHQUAKE BRACE



PIPE HEADER
TRAPEZE HANGER

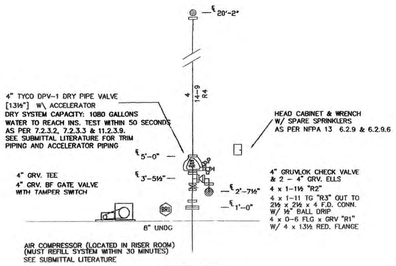
TRAPEZE HANGERS ARE LOCATED A 6" OF BAY FOR DISTANCE OF 5'-0" BETWEEN PURLINS.
SIZE OF UNISTRUT IN ACCORDANCE WITH NFPA TABLE 9.1.1.6.1 (A) AND 9.1.1.6.1 (B)

FLOW TEST INFORMATION

FROM FIRE PUMP @ TRUCK WASH

STATIC	60 P.S.I.
RESIDUAL	42 P.S.I.
FLOW	1100 G.P.M.
PITOT	40
OUTLET SIZE	1 -2½" OUTLETS
WITNESSED BY	CITY
DATE	APRIL 2008
ELEVATION	

SYSTEM NUMBER: 2		REMOTE AREA NUMBER: 1	
OCCUPANCY CLASSIFICATION: ORDINARY HAZARD			
DENSITY: .20		AREA OF APPLICATION: 1950 SQ. FT.	
NO. OF HEADS CALC'D: 17			
MAX. 130 SQ. FT. PER HEAD (SSP)		ORIFICE SIZE: 17/32"	
SPRINKLER SYSTEM DEMAND: 441.6	GPM AT 39.63	PSI AT BASE OF RISER	
HOSE STREAM REQUIRED:	GPM (INSIDE)	250 GPM (OUTSIDE)	
TOTAL WATER REQUIRED: 691.6	GPM AT 42.98	PSI AT CITY CONN.	
PRESSURE AVAILABLE: 51.1	PSI	8.11 PSI SAFETY FACTOR	



RISER DETAIL
SCALE: ¼" = 1'-0"

NOTE: ALL RISERS TO HAVE IDENTIFICATION SIGNS AS PER NFPA 13 SECTION 6.7.4.1 ALONG WITH HYDRAULIC CALC. PLAQUE AS PER SECTION 16.5

GENERAL NOTES

1. DESIGN ORDINARY HAZARD .2 / 1500 SQ. FT. ADJUST 30% (1950 SQ. FT.) FOR DRY PIPE SYSTEM ---- BUILDING USED FOR TRUCK REPAIR
2. MAIN PIPING TO BE THINWALL SCH. 10 PIPE WITH GROOVED FITTINGS.
3. BRANCH LINE PIPING TO BE SCH. 10 PIPE WITH GROOVED / WELDED FITTINGS.
4. SYSTEM TO BE IN ACCORDANCE WITH NFPA # 13.
5. MAXIMUM STORAGE HEIGHT TO BE 12' PALLETIZED THROUGHOUT BUILDING. (IF FUTURE RACK STORAGE IS TO BE INSTALLED, STORAGE HEIGHT WILL BE LIMITED TO 12' FOR UP TO CLASS III COMMODITY AND 10' FOR CLASS IV COMMODITY)
6. ALL UNDERGROUND PIPING (BY OTHERS) TO BE INSTALLED, BLOCKED, RODDED, FLUSHED, AND TESTED IN ACCORDANCE WITH NFPA # 13 & # 24 & # 25.
7. SYSTEM TO BE TESTED AT 200 # FOR 2 HOURS.
8. SEE NOTES ON SPRINKLER DESIGN
9. BUILDING CONSTRUCTION IS STEEL BEAMS WITH METAL ROOF DECK.
10. THERE ARE TO BE NO COMBUSTIBLES ABOVE DROPPED CEILINGS.
11. ALL DROPS TO SSP ARE 1" FLEX DROP x 1'-0" ON RETURN BENDS (OFFICE)
12. OWNER TO PROVIDE ADEQUATE HEAT IN OFFICE AREAS TO PREVENT FREEZING.
13. OWNER TO PROVIDE ROOM AROUND RISER WITH HEATING AND LIGHTING.
14. SPRINKLERS IN OFFICE INSTALLED ON "RETURN BENDS" AS PER NFPA 7.2.2 (3). RETURN BEND AS PER NFPA FIGURE 8.14.18.3 (IN HEATED 440 AREA)
15. AUX. DRUM DRIP DRAINS INSTALLED AT ALL LOW POINTS.
16. DRY SYSTEM IS A LOOPED SYSTEM AND NOT A GRID SYSTEM. SEE DEFINITIONS FOR EACH NFPA 3.4.6 AND 3.4.7.
17. BRANCH LINES SLOPED ½" PER 10' AND MAINS ARE SLOPED ¼" PER 10'.
18. SPRINKLERS, VALVES, PIPE, HANGERS, EQ BRACES & FITTINGS TO BE LISTED AND APPROVED FOR FIRE PROTECTION SPRINKLER SYSTEM.
19. HANGER AND EQ BRACE SPACING AS PER NFPA STANDARDS.

APPROVED PLANS MUST BE ON SITE FOR INSPECTIONS

DESIGN DEFINITIONS FROM NFPA 13 2002 EDITION:

1. ORDINARY HAZARD GROUP II: NFPA 5.3.2 "OCCUPANCIES SHALL BE DEFINED AS OCCUPANCIES OR PORTIONS OF OTHER OCCUPANCIES WHERE THE QUANTITY AND COMBUSTIBILITY OF CONTENTS ARE MODERATE TO HIGH, STOCKPILES DO NOT EXCEED 12' AND FIRES WITH MODERATE TO HIGH RATES OF HEAT RELEASE ARE EXPECTED."
2. NFPA A.5.3.2.2 GIVES EXAMPLES OF ORD. HAZARD GROUP II AS: CEREAL MILL, ORDINARY CHEMICAL PLANTS, DRY CLEANERS, HORSE STABLES, LEATHER GOODS MFGR., MACHINE SHOPS, METAL WORKING, MERCANTILE, PRINTING AND PUBLISHING, REPAIR GARAGES, RESIN APPLICATION AREA, STAGES, TIRE MFGR., WOOD MACHINING, AND WOOD PRODUCT ASSEMBLY.
3. ANY APPLICATION (TENANT) OTHER THAN THOSE MENTIONED ABOVE WILL NEED TO BE VERIFIED BY FIRE MARSHALL AS AN ORDINARY HAZARD OCCUPANCY.
4. SPRINKLER SYSTEM MAY NEED TO BE REVISED IF TENANT DOES NOT MEET THE ABOVE CRITERIA.
5. THE SPRINKLER SYSTEM FOR THIS BUILDING IS DESIGNED AND INSTALLED IN ACCORDANCE TO THE CURRENT (ADOPTED) EDITIONS OF NFPA.

FIELD COPY

SYMBOLS	REVISIONS
Y = 2" PIPE STAND	4-27-08 STOCKLIST CHANGES
C4 = MAIN PIECE NUMBER	7-21-08 AS PER REVIEW LETTER
#6 = LINE NUMBER	
℄ = CENTERLINE OF PIPE	
ℇ = ELEVATION OF PIPE AFF = HANGER LOCATION	
TOJ = TOP OF JOIST (STEEL)	
BOD = BOTTOM OF CONCRETE DECK	
= 2 WAY EARTHQUAKE BRACE	
= 4 WAY EARTHQUAKE BRACE	
21'-0" = ELEVATION TOJ	

SPRINKLER SYMBOL DESCRIPTION										
SYMBOL	MAKE	STYLE	NPT	COLOR	ORIFICE	MODEL	COVERAGE	TEMP	K-FACTOR	TOTAL
○	TYCO	SSU QR	¾"	BRASS	17/32"	TY4131	130 SQ. FT. MAX	165°	8.0	241

PERMIT # BLD2008-00464
TAX LOT # 3201-040--00805
OWNER: HEDGES CREEK MANAGEMENT, LLC
14860 NW ROCK CREEK ROAD
PORTLAND, OREGON 97218

TOTAL SPRINKLERS SHOWN ON THIS SHEET: 241
TOTAL SPRINKLERS REQUIRED ON THIS CONTRACT: 395

AMERICAN SPRINKLERS, INC.
7950 N. LONE PINE ROAD
(541) 504-9837 (503) 289-3095 PORTLAND
(541) 504-6244 FAX (503) 341896-2540 PORTLAND FAX
(541) 948-0679 CELL PHONE
TERREBONNE, OREGON 97760

NORTH

PROJECT: HEDGES CREEK MANAGEMENT TRUCK STOP
33619 E. CROWN ZELLERBACH RD.
SCAPPOOSE, OREGON

SHEET TITLE: OVERHEAD FIRE SPRINKLER PLAN

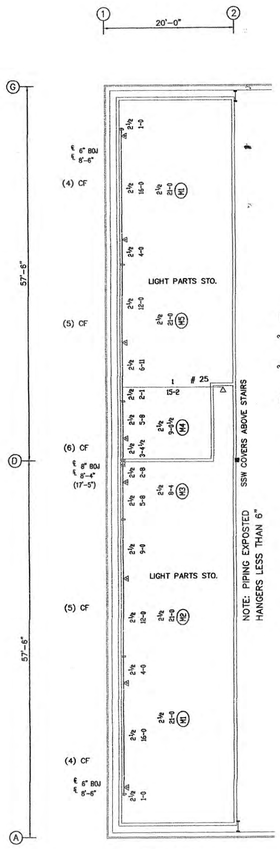
DATE: 5-3-08
SCALE: 1/8" = 1'-0"
JOB NO.: 2008-007
BY: C. HEGELE
SHEET: SP 1 OF 2

COLUMBIA COUNTY LAND DEVELOPMENT SERVICES
24-HOUR NOTICE REQUESTED FOR REQUIRED INSPECTIONS
☐ Approved:
☒ Approval subject to noted corrections.
☐ Approval subject to noted correction sheet.
By: Date: 8-28-08

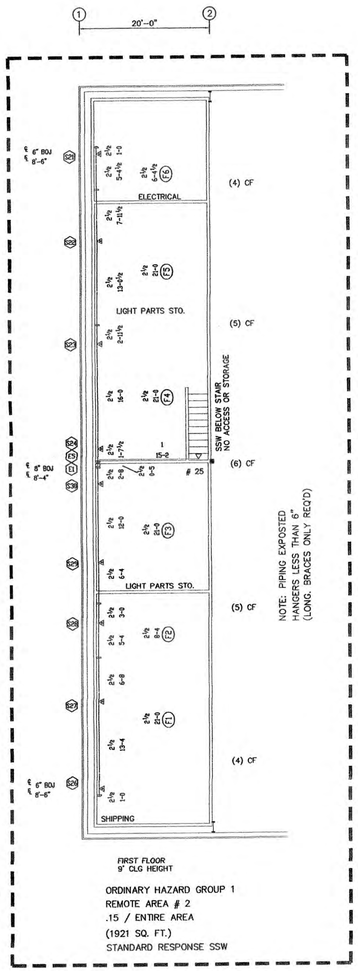
REGISTERED PROFESSIONAL ENGINEER 11498PE OREGON EXPIRES: 12-31-08 DEE LEE LOCKWOOD

EXPIRES: 12-31-08

* NOT FOR HIGH PILED STORAGE

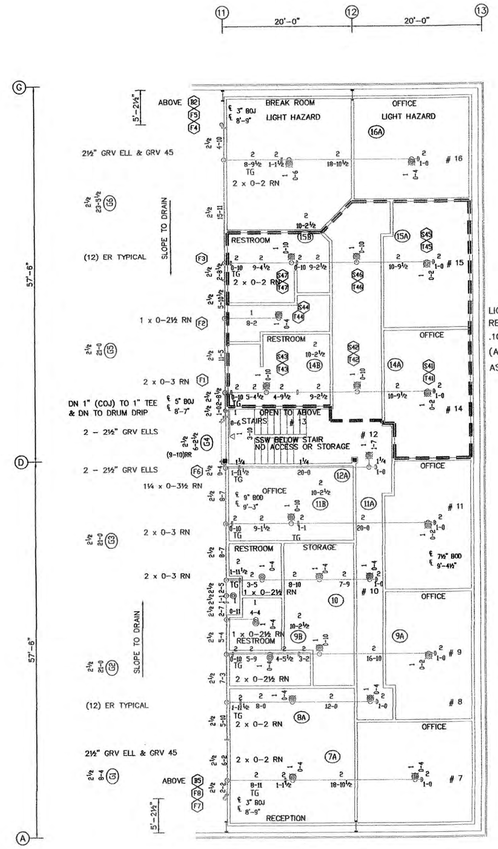


SECOND FLOOR
9' CLG HEIGHT
PARTS STORAGE
FIN. FLOOR = 9'-1"
ORDINARY HAZARD GROUP 1
STANDARD RESPONSE SSW

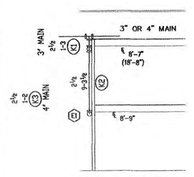


FIRST FLOOR
9' CLG HEIGHT

ORDINARY HAZARD GROUP 1
REMOTE AREA # 2
.15 / ENTIRE AREA
(1921 SQ. FT.)
STANDARD RESPONSE SSW

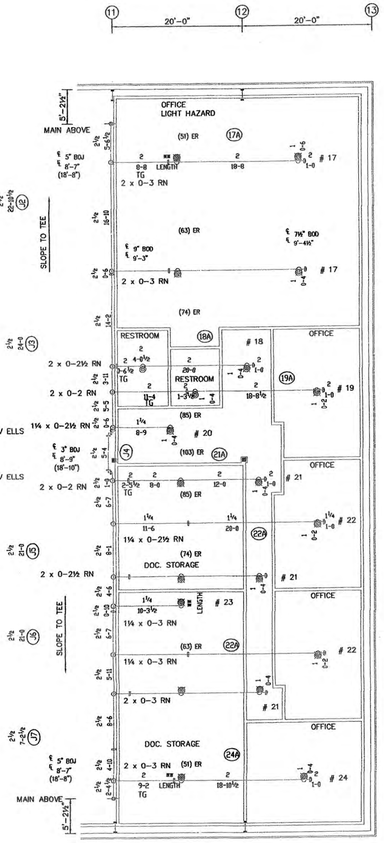


LIGHT HAZARD
REMOTE AREA # 3
.10 / 900 SQ. FT.
(AREA ADJUSTED FOR QR HEADS
AS PER NFPA FIGURE 11.2.3.2.3.1)



TYPICAL DROP TO OFFICE

FIRST FLOOR
9' CLG HEIGHT
LIGHT HAZARD
QUICK RESPONSE HEADS



SECOND FLOOR
9' CLG HEIGHT
LIGHT HAZARD
QUICK RESPONSE HEADS

EARTHQUAKE PROTECTION NOTES:

1. 4 WAY BRACE INSTALLED WITHIN 2' OF TOP OF RISER
2. LATERAL BRACE TO BE WITHIN 3' OF END OF X-MAINS
3. LONGITUDINAL BRACE TO BE WITHIN 40' OF END OF MAIN
4. LATERAL AND LONGITUDINAL BRACE TO BE WITHIN 2' OF CHANGE OF DIRECTION OF PIPING.
5. RISERS TO HAVE FLEXIBLE COUPLINGS AT THE TOP AND BOTTOM OF THE RISERS.
6. LOCATION FOR SEISMIC BRACING IS IN ACCORDANCE WITH NFPA AND FM STANDARDS -- LOCATIONS ON DRAWINGS MAY BE SHOWN FOR CLARITY REASONS ONLY.
7. WORST CASE EQ CALCULATIONS PROVIDED.

EQ BRACE CALC: (TYPICAL)

2 (TW) x 42' x 4.22 LBS x .5 = 88.62
4 (TW) x 21' x 11.78 LBS x .5 = 123.38
TOTAL = 212.0 LBS.

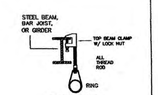
BRACE INFORMATION

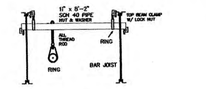
LENGTH OF BRACE	MAX. 13'-0"
DIA. & TYPE OF BRACE	1¼" SCH. 40 PIPE
ANGLE OF BRACE	30-45 DEGREE
LEAST RADIUS OF GYRATION	.42
L/R VALUE	200
MAX. HORIZONAL LOAD	1063 LB

EARTHQUAKE CALCS.

CONNECT TO BOTTOM OF TOP CHORD OF TRUSS

EARTHQUAKE BRACE





PIPE HEADER
TRAPEZE HANGER

FLOW TEST INFORMATION

FLOW TEST @ CORNNER PARRRELL RD. @ BADGER
STATIC HYD 300' EAST

STATIC	60 P.S.I.
RESIDUAL	42 P.S.I.
FLOW	1100 G.P.M.
PITOT	
OUTLET SIZE	1 -2½" OUTLETS
WITNESSED BY	CITY
DATE	11-26-07
ELEVATION	

SYSTEM NUMBER: 1		REMOTE AREA NUMBER: 3	
OCCUPANCY CLASSIFICATION:	ORDINARY HAZARD		
DENSITY:	.1	AREA OF APPLICATION:	1170 SQ. FT.
NO. OF HEADS CALC'D:	13		
MAX. 400 SQ. FT. PER HEAD (SSP)		ORIFICE SIZE:	K=14.0
SPRINKLER SYSTEM DEMAND:	296.0	GPM AT 34.84 PSI AT BASE OF RISER	
HOSE STREAM REQUIRED:	GPM (INSIDE)	250	GPM (OUTSIDE)
TOTAL WATER REQUIRED:	396.0	GPM AT 37.70 PSI AT CITY CONN.	
PRESSURE AVAILABLE:	51.68 PSI	13.97	PSI SAFETY FACTOR

SYSTEM NUMBER: 1		REMOTE AREA NUMBER: 2	
OCCUPANCY CLASSIFICATION:	ORDINARY HAZARD GROUP 1		
DENSITY:	.15	AREA OF APPLICATION:	1920 SQ. FT.
NO. OF HEADS CALC'D:	13		
MAX. 320 SQ. FT. PER HEAD (SSW)		ORIFICE SIZE:	K=11.2
SPRINKLER SYSTEM DEMAND:	423.9	GPM AT 40.33 PSI AT BASE OF RISER	
HOSE STREAM REQUIRED:	GPM (INSIDE)	250	GPM (OUTSIDE)
TOTAL WATER REQUIRED:	673.9	GPM AT 43.44 PSI AT CITY CONN.	
PRESSURE AVAILABLE:	51.14 PSI	7.69	PSI SAFETY FACTOR

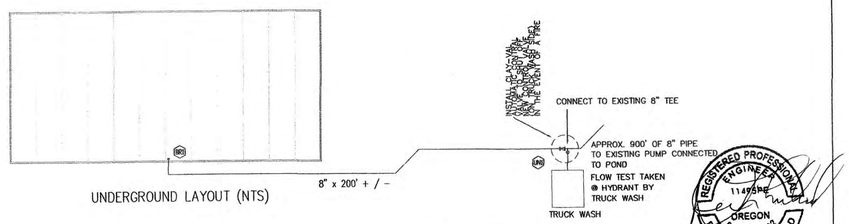
GENERAL NOTES

1. DESIGN ORDINARY HAZARD .2 / 1500 SQ. FT. ADJUST 30% (1950 SQ. FT.) FOR DRY PIPE SYSTEM ---- BUILDING USED FOR TRUCK REPAIR
2. MAIN PIPING TO BE THINWALL SCH. 10 PIPE WITH GROOVED FITTINGS.
3. BRANCH LINE PIPING TO BE SCH. 10 PIPE WITH GROOVED / WELDED FITTINGS.
4. SYSTEM TO BE IN ACCORDANCE WITH NFPA # 13.
5. MAXIMUM STORAGE HEIGHT TO BE 12' PALLETIZED THROUGHOUT BUILDING. (IF FUTURE RACK STORAGE IS TO BE INSTALLED, STORAGE HEIGHT WILL BE LIMITED TO 12' FOR UP TO CLASS III COMMODITY AND 10' FOR CLASS IV COMMODITY)
6. ALL UNDERGROUND PIPING (BY OTHERS) TO BE INSTALLED, BLOCKED, RODDED, FLUSHED, AND TESTED IN ACCORDANCE WITH NFPA # 13 & # 24 & # 25.
7. SYSTEM TO BE TESTED AT 200 # FOR 2 HOURS.
8. SEE NOTES ON SPRINKLER DESIGN
9. BUILDING CONSTRUCTION IS STEEL BEAMS WITH METAL ROOF DECK.
10. THERE ARE TO BE NO COMBUSTIBLES ABOVE DROPPED CEILINGS.
11. ALL DROPS TO SSP ARE 1" FLEX DROP x 1'-0" ON RETURN BENDS (OFFICE).
12. OWNER TO PROVIDE ADEQUATE HEAT IN OFFICE AREAS TO PREVENT FREEZING.
13. OWNER TO PROVIDE ROOM AROUND RISER WITH HEATING AND LIGHTING.

DESIGN DEFINITIONS FROM NFPA 13 2002 EDITION:

1. ORDINARY HAZARD GROUP II: NFPA 5.3.2 "OCCUPANCIES SHALL BE DEFINED AS OCCUPANCIES OR PORTIONS OF OTHER OCCUPANCIES WHERE THE QUANTITY AND COMBUSTIBILITY OF CONTENTS ARE MODERATE TO HIGH, STOCKPILES DO NOT EXCEED 12' AND FIRES WITH MODERATE TO HIGH RATES OF HEAT RELEASE ARE EXPECTED."
2. NFPA A.5.3.2 GIVES EXAMPLES OF ORD. HAZARD GROUP II AS: CEREAL MILL, ORDINARY CHEMICAL PLANTS, DRY CLEANERS, HORSE STABLES, LEATHER GOODS MGR., MACHINE SHOPS, METAL WORKING, MERCANTILE, PRINTING AND PUBLISHING, REPAIR GARAGES, RESIN APPLICATION AREA, STAGES, TIRE MGR., WOOD MACHINING, AND WOOD PRODUCT ASSEMBLY.
3. ANY APPLICATION (TENANT) OTHER THAN THOSE MENTIONED ABOVE WILL NEED TO BE VERIFIED BY FIRE MARSHALL AS AN ORDINARY HAZARD OCCUPANCY.
4. SPRINKLER SYSTEM MAY NEED TO BE REVISED IF TENANT DOES NOT MEET THE ABOVE CRITERIA
5. THE SPRINKLER SYSTEM FOR THIS BUILDING IS DESIGNED AND INSTALLED IN ACCORDANCE TO THE CURRENT (ADOPTED) EDITIONS OF NFPA.

NOTE: OWNER TO PROVIDE VALVE HOUSE AROUND NEW CONNECTION WITH HEAT AND LIGHTING AND ALSO A PUMP HOUSE, WITH HEAT AND LIGHTING AROUND THE EXISTING PUMP.



UNDERGROUND LAYOUT (NTS)

NOTE: WATER SUPPLY COMES FROM A PRIVATE INDUSTRIAL SOURCE

▷ = NOTE: SPACING 225 SQ. FT. MAX (LIGHT HAZ)
MAX THROW 12' (INSTALLED AT STAIRS)

REGISTERED PROFESSIONAL ENGINEER
11493PE
OREGON
JAN. 19, 1983
LEE LEE LOCKWOOD
EXPIRES: 12-31-09

SYMBOLS	REVISIONS
Y = 2" PIPE STAND	4-26-08 STOCKLIST CHANGES
(24) = MAIN PIECE NUMBER	7-21-08 AS PER REVIEW LETTER
# 5 = LINE NUMBER	
℄ = CENTERLINE OF PIPE	
ℇ = ELEVATION OF PIPE AFF	
= HANGER LOCATION	
TOJ = TOP OF JOIST (STEEL)	
BOD = BOTTOM OF CONCRETE DECK	
= 2 WAY EARTHQUAKE BRACE	
= 4 WAY EARTHQUAKE BRACE	
21'-0" = ELEVATION TOJ	

PERMIT # BLD2008-00464
TAX LOT # 3201-040--00605
OWNER: HEDGES CREEK MANAGEMENT, LLC.
14880 NW RIDGE CREEK ROAD
PORTLAND, OREGON 97218

SYMBOL	MAKE	STYLE	NPT	COLOR	ORIFICE	MODEL	TEMP	K-FACTOR	TOTAL
◎	TYCO	SSP QR	½"	CHROME	½"	TY3231	165°	5.6	6
▥	TYCO	SSP EC QR	½"	CHROME	½"	TY6237	155°	14.0	38
▷	▪ TYCO	SSW QR	½"	BRASS	½"	TY3331	165°	5.6	3
◁	TYCO	SSW EC STANDARD	½"	BRASS	½"	TY5332	155°	11.2	17
TOTAL SPRINKLERS SHOWN ON THIS SHEET									64
TOTAL SPRINKLERS REQUIRED ON THIS CONTRACT									385

AMERICAN SPRINKLERS, INC.
7959 N. LONE PINE ROAD
(541) 504-8837 (503) 289-3695 PORTLAND
(541) 504-4244 FAX (503) 541286-2540 PORTLAND FAX
(541) 948-8679 CELL PHONE
TERREBONNE, OREGON 97760

NORTH

PROJECT	HEDGES CREEK MANAGEMENT TRUCK STOP 33619 E. CROWN ZELLERBACH RD. SCAPPOOSE, OREGON
SHEET TITLE	OFFICE AREAS FIRE SPRINKLER PLAN
DATE:	5-3-08
SCALE:	1/8" = 1'-0"
JOB NO.:	2005-007
BY:	C. HEIDLE
SHEET:	FP 2 OF 2