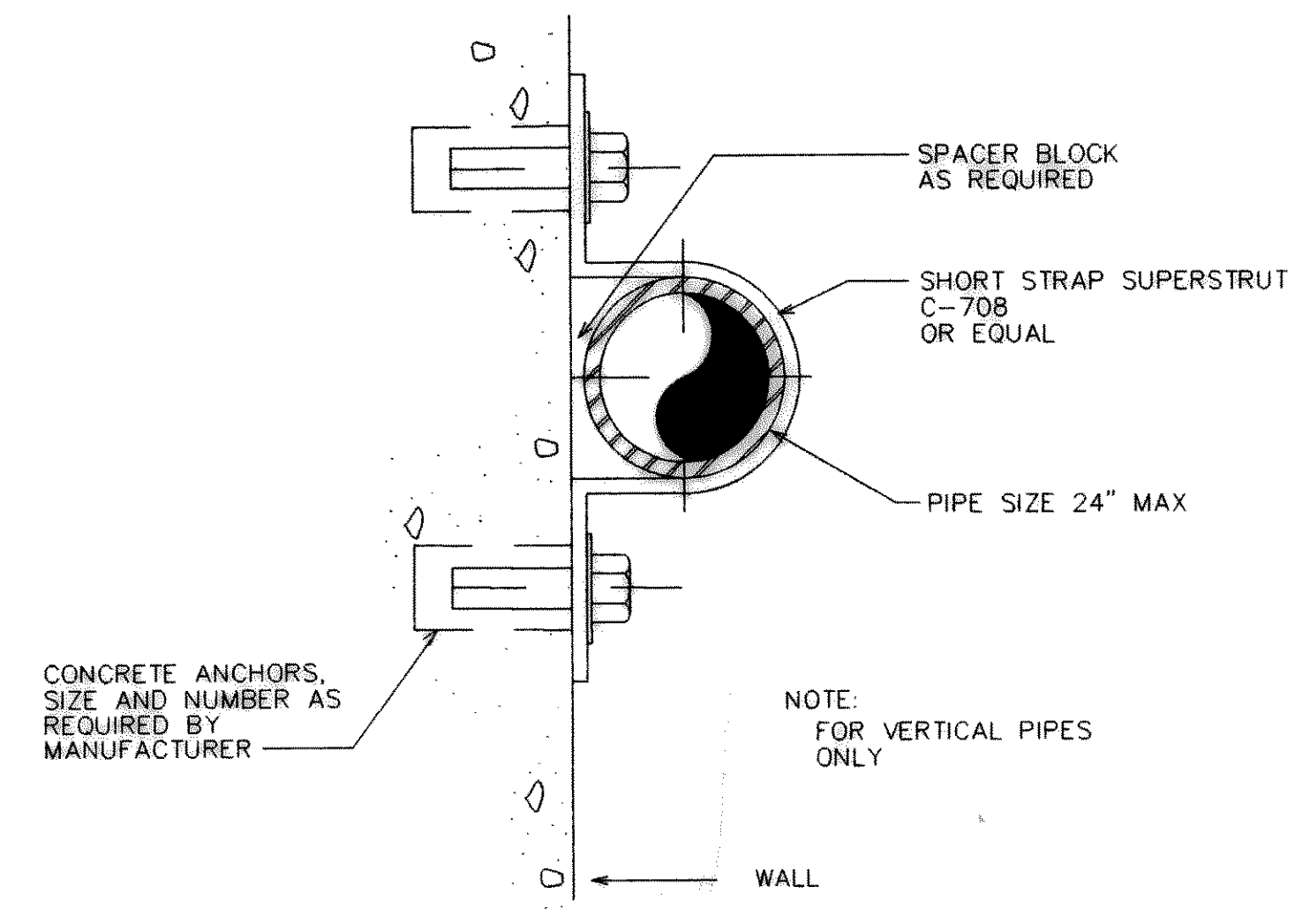


- NOTES:
1. SPACE SUPPORTS TO SUIT LOAD.
 2. ON STEEL COLUMNS SECURE SUPPORTS WITH NUTS AND BOLTS AS REQUIRED.
 3. FOR HORIZ. PIPES ONLY.

TYPE Q PIPE SUPPORT

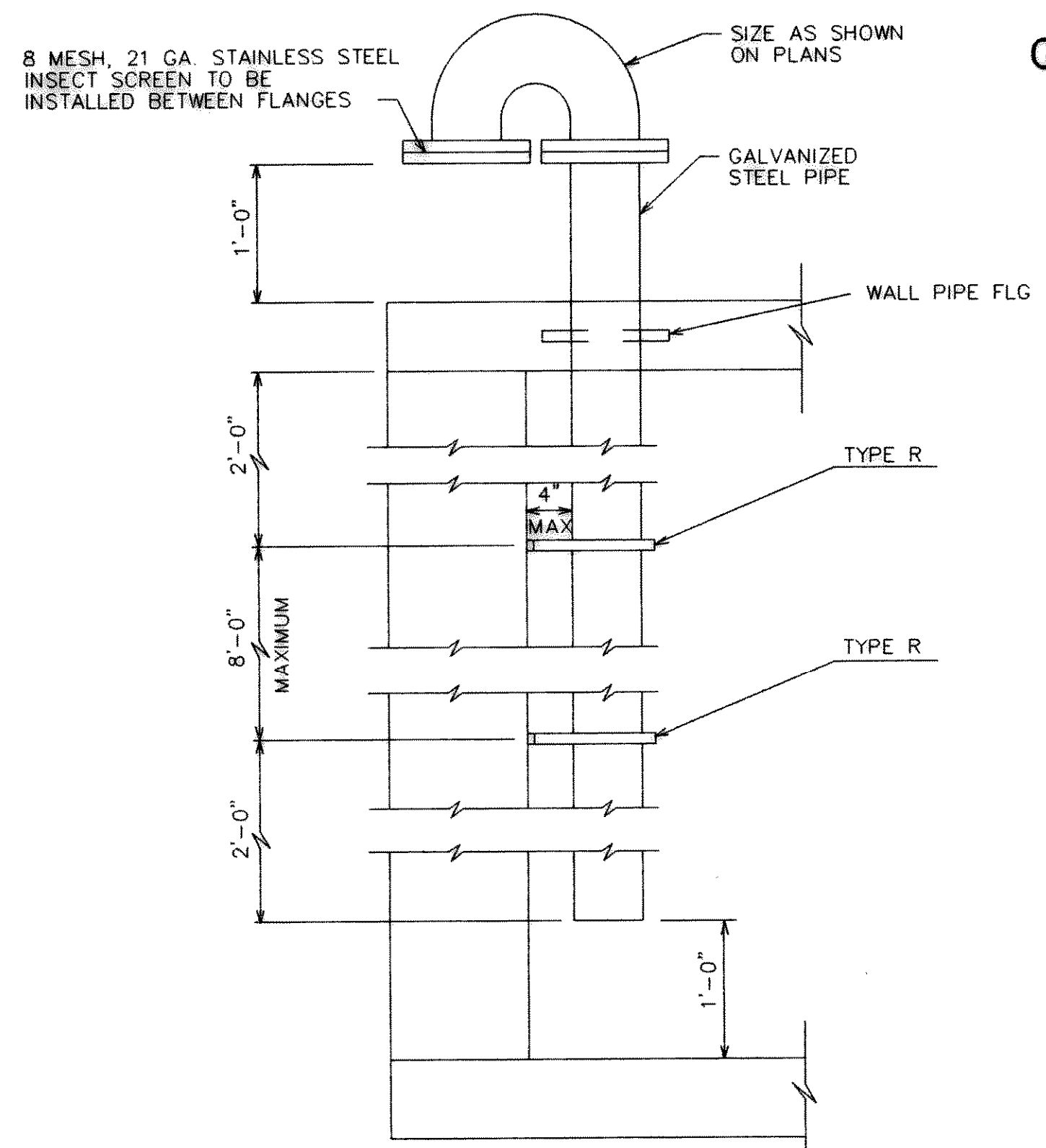
NOT TO SCALE



- NOTE:
1. FOR VERTICAL PIPES ONLY

TYPE R PIPE SUPPORT

NOT TO SCALE

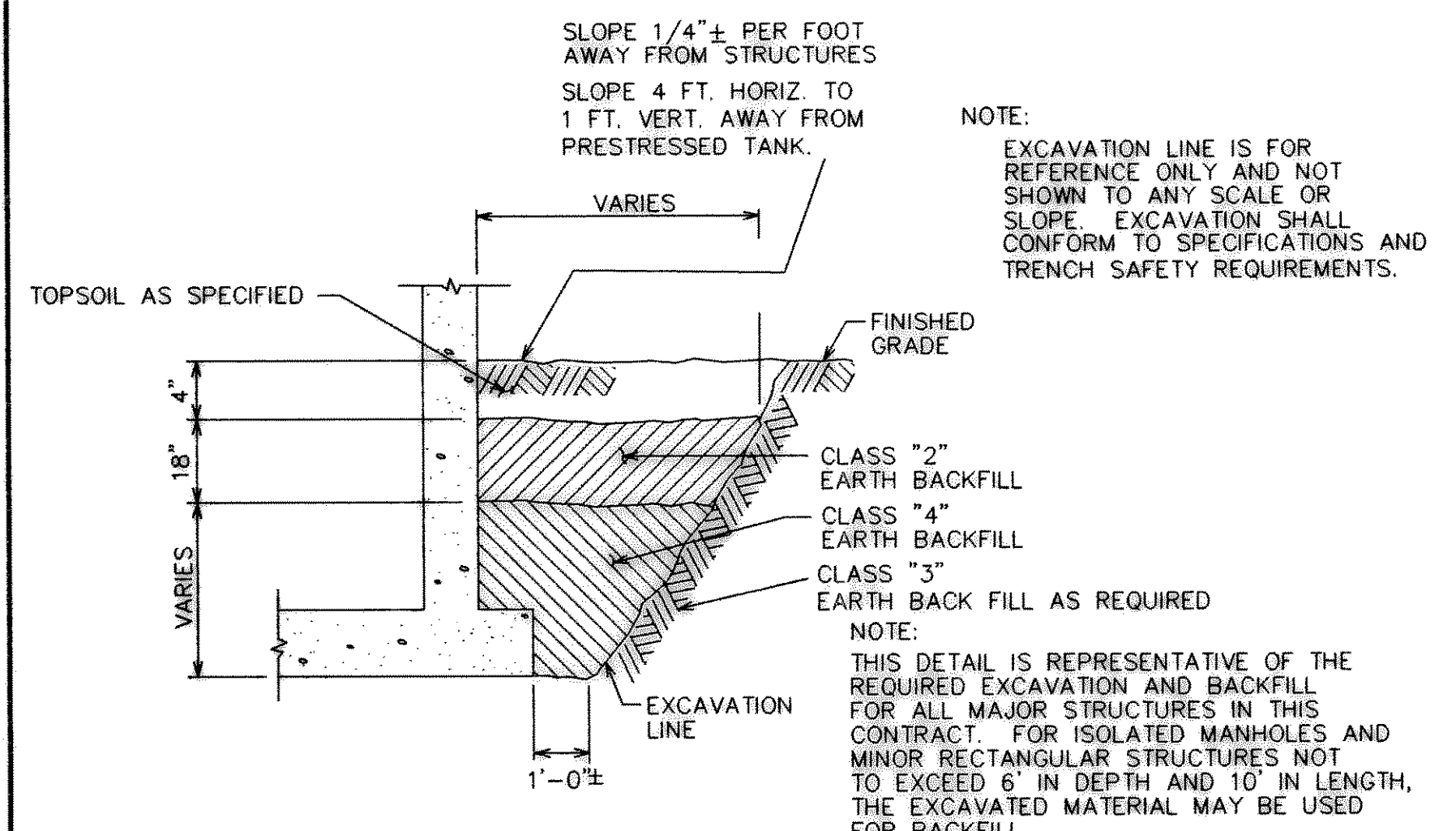


FLOW METER VAULT AIR VENT DETAIL

NOT TO SCALE

GENERAL NOTES:

1. WHERE NO REFERENCE TO PIPE SUPPORT SYSTEMS IS GIVEN ON THE DRAWINGS, THE CONTRACTOR SHALL USE AN APPROPRIATE SYSTEM. PIPE AND CONDUIT SUPPORT SYSTEMS SHALL BE UNISTRUT, GRINNELL, SUPER STRUT OR APPROVED EQUAL, AND SHALL BE DESIGNED BY THE CONTRACTOR TO MEET THE MINIMUM LOAD AND SPAN REQUIREMENTS SPECIFIED.
2. UNLESS OTHERWISE SPECIFIED, HANGERS AND SUPPORTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION. NUT, BOLTS AND WASHERS SHALL BE TYPE 304 STAINLESS STEEL.
3. UNLESS OTHERWISE SPECIFIED, EXPANSION ANCHORS SHALL NOT BE USED.
4. MSS REFERS TO THE MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY, STANDARD PRACTICE SP58 AND SP69.
5. HANGER BRACKETS AND SUPPORT COMPONENTS MAY BE INTERCHANGED.
6. CONCRETE INSERTS IN AREAS BELOW WATER SURFACE OR NORMALLY SUBJECT TO SUBMERGING SHALL BE EMBEDDED ANCHOR BOLTS OR EQUAL.
7. PROVIDE PLASTIC OR RUBBER CHANNEL END CAPS AT EXPOSED ENDS OF CHANNELS 7'-0" ABOVE FLOOR AND BELOW.
8. MAXIMUM DESIGN WEIGHTS AND LOADS SHALL BE AS SHOWN IN TABLE A, THIS SHEET, OR AS SHOWN IN THE DETAILS ON THIS SHEET.
9. WHEN SUPPORTING PIPING REQUIRES HORIZONTAL FLEXIBILITY NORMAL TO A STEEL BEAMS AXIS, USE STRUCTURAL ATTACHMENTS RECOMMENDED BY MANUFACTURER FOR PARALLEL FLEXIBILITY.
10. ALL PIPING SUPPORTED BY HANGERS AND/OR STRUCTURAL ATTACHMENTS SHALL BE BRACED AGAINST HORIZONTAL, VERTICAL, AXIAL, AND LONGITUDINAL SWAY. BRACINGS SHALL BE CALCULATED TO RESIST ZONE 1 SEISMIC LOADINGS AS SPECIFIED BY SMACNA AND AS INDICATED IN THE SPECIFICATIONS.
11. FITTINGS SHALL NOT BE LESS THAN MSS CL. B.
12. UNLESS OTHERWISE SPECIFIED, TRAPEZE AND PIPE RACK COMPONENTS SHALL HAVE A MINIMUM STEEL THICKNESS OF 12 GAGE WITH A MAXIMUM DEFLECTION 1/240 OF THE SPAN. MINIMUM CHANNEL COMPONENT SIZE SHALL BE 1 5/8" SQUARE AS MANUFACTURED BY SUPER STRUT, UNISTRUT, GRINNELL, OR APPROVED EQUAL.



- NOTE:
1. EXCAVATION LINE IS FOR REFERENCE ONLY AND NOT SHOWN TO ANY SCALE OR SLOPE. EXCAVATION SHALL CONFORM TO SPECIFICATIONS AND TRENCH SAFETY REQUIREMENTS.

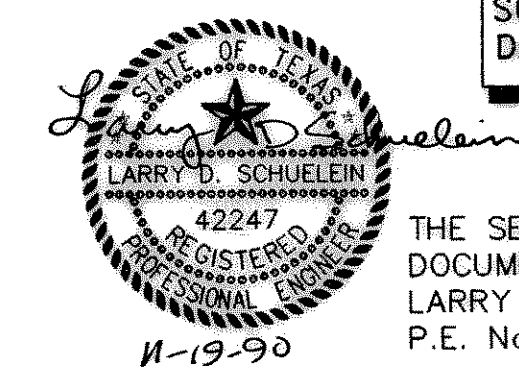
EXCAVATION AND BACKFILL

NOT TO SCALE

NOMINAL PIPE SIZE (INCHES)	SUPPORT ROD SIZE AND MAXIMUM LOAD PER ROD SEE NOTES				MAXIMUM PIPE SPAN (FEET)			
	ONE ROD SUPPORT SYSTEM		TWO ROD SUPPORT SYSTEM		STEEL	COPPER	PLASTIC SEE NOTE 3	DUCTILE IRON SEE NOTE 5
	ROD SIZE (INCHES)	MAX LOAD (POUNDS)	ROD SIZE (INCHES)	MAX LOAD (POUNDS)				
3/8" TO 3/4"	3/8"	610	3/8"	610	5	5	CONTINUOUS	---
1	3/8"	610	3/8"	610	5	5	5	---
1-1/4	3/8"	610	3/8"	610	5	5	5	---
1-1/2	3/8"	610	3/8"	610	5	5	5	---
2	3/8"	610	3/8"	610	10	5	5	---
2-1/2	1/2"	1130	3/8"	610	10	10	5	---
3	1/2"	1130	3/8"	610	10	20	5	---
4	5/8"	1810	3/8"	610	10	20	5	---
6	3/4"	2710	1/2"	1130	15	20	5	---
8	7/8"	3770	5/8"	1810	15	20	5	---
10	1"	4960	3/4"	2710	20	---	5	---
12	1-1/4"	8000	7/8"	3770	20	---	10	---
14	1-1/4"	8000	1"	4960	20	---	---	---
16	1-1/4"	8000	1"	4960	25	---	---	---
18	1-1/4"	8000	1"	4960	25	---	---	---
20	1-1/2"	11630	1-1/4"	8000	25	---	---	---
24	1-1/2"	11630	1-1/2"	11630	30	---	---	---
30	1-1/2"	11630	1-1/2"	11630	30	---	---	---

- NOTES:
1. DESIGN WEIGHT SHALL BE THE WEIGHT OF THE PIPE FULL OF WATER. HANGER SYSTEMS SHALL BE DESIGNED FOR A FACTOR OF SAFETY OF 5 OR GREATER.
 2. ROD SIZES SHOWN ARE FOR THE SUPPORT OF A SINGLE PIPE. WHEN SUPPORTING MORE THAN ONE PIPE, ROD SHALL BE SIZED USING THE DESIGNED WEIGHTS (SEE NOTE 1) TO DETERMINE THE TOTAL DESIGN LOAD. THE TOTAL DESIGN LOAD SHALL NOT EXCEED THE MAXIMUM LOADS SHOWN IN TABLE A.
 3. SPAN SHOWN IS FOR SCHEDULE 80 PVC PIPE AT 100F. SPANS FOR OTHER PLASTICS, OTHER PVC PIPE SCHEDULES AND PIPES AT HIGHER TEMPERATURES SHALL BE SHORTENED IN ACCORANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS. "CONTINUOUS" MEANS PIPE SHALL BE IN UNISTRUT POWER-STRUT OR SIMILAR CHANNEL.
 4. FOR PIPES SUBJECT TO LONGITUDINAL MOVEMENT, OR HAVING SERVICE TEMPERATURES IN RANGES OF 33F TO 59F OR 120F TO 450F, SEE TYPICAL SUPPORT ROD FOR PIPES SUBJECT TO HORIZONTAL MOVEMENT, THIS DRAWING.
 5. PROVIDE A MINIMUM OF ONE PIPE HANGER PER PIPE LENGTH, WITHIN 4-INCHES OF THE BELL.

RECORD DRAWING
 BASED ON INFORMATION
 SUPPLIED BY THE CONTRACTOR
 DATE: 10/2/92 BY: LDS



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY LARRY D. SCHUELEIN, TEXAS P.E. No. 42247 ON NOV. 19, 1990

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