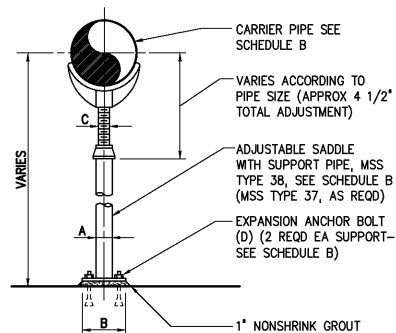


BASE ELBOW (TEE)

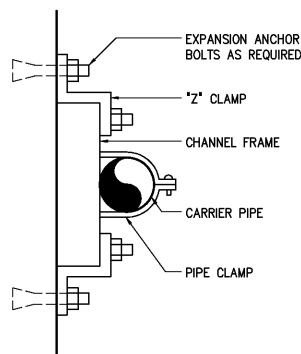
1509400

SCHEDULE A					
BASE ELBOW (TEE) (DIM IN INCHES)					
PIPE SIZE	A	B	C	D	DIA x LG
3	1 1/2	5	4 7/8	1/2 x 5	
4	2	6	5 1/2	5/8 x 5	
5-6	2 1/2	7	VARIES	5/8 x 5	
8-10	4	9	VARIES	5/8 x 5	
12-16	6	11	VARIES	3/4 x 6	
18-24	8	13 1/2	VARIES	3/4 x 6	
30	10	16	23	7/8 x 7	
36	12	19	26	7/8 x 7	
SCHEDULE B					
ADJUSTABLE SADDLE (DIM IN INCHES)					
PIPE SIZE	A	B	C	D	DIA x LG
3	2 1/2	7	1 1/2	5/8 x 5	
4-12	3	7 1/2	2 1/2	5/8 x 5	
14-16	4	9	3	5/8 x 5	
18-20	6	11	3 1/2	3/4 x 6	
24-36	6	11	4	3/4 x 6	



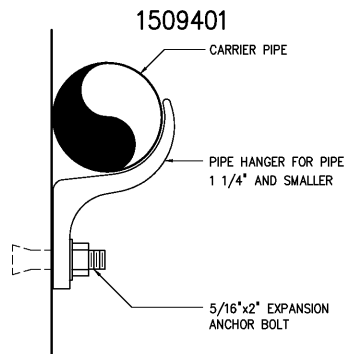
ADJUSTABLE SADDLE

1509405



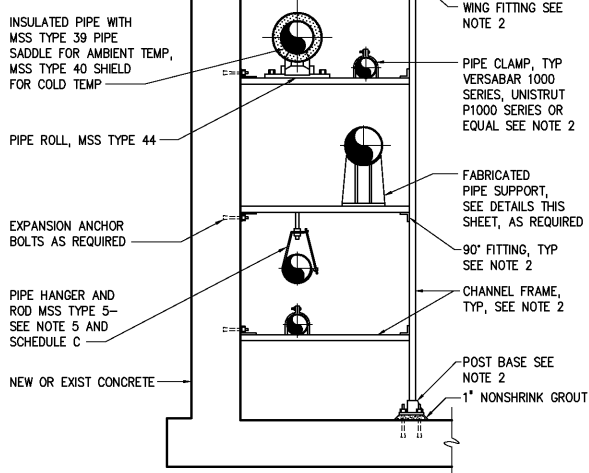
PIPE WALL SUPPORT

1509402



WALL HANGER PIPE SUPPORT

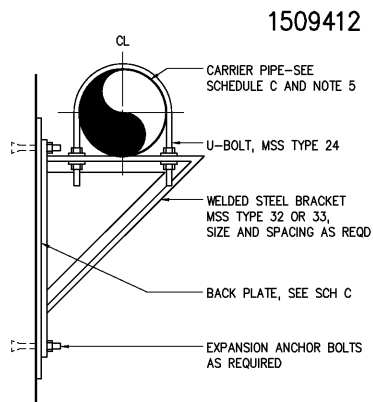
1509403



PIPE SUPPORT RACK

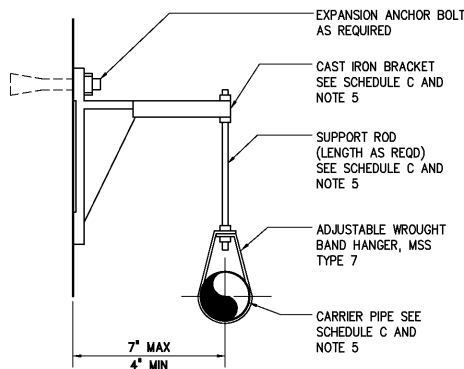
1509408

SCHEDULE C								
SUPPORT RODS AND BRACKET SPACING (FOR STANDARD WEIGHT PIPE)								
PIPE SIZE (INCHES)	BACK PLATE (INCHES)	MINIMUM ROD Ø (INCHES)		MAX SPAN IN FEET (SEE NOTE 8)				
		PROCESS PIPING	STEEL AIR PIPING	COPPER	PLASTIC	STEEL	DIP (SEE NOTE 7)	
UP TO 1	SEE NOTE 4	3/8	3/8	5	5	6	-	
1 1/4-2	*	3/8	3/8	8	5	10	-	
2 1/2-3 1/2	*	3/8	3/8	8	5	12	6	
4-5	*	1/2	3/8	-	5	14	8	
6	*	5/8	3/8	-	5	15	9	
8-12	*	3/4	1/2	-	5	15	9	
14-16	*	7/8	1/2	-	5	15	9	
18	*	1	1/2	-	5	18	10	
20-24	*	1 1/4	5/8	-	5	18	10	



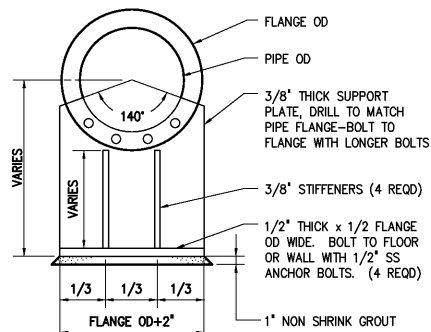
PIPE SUPPORT BRACKET

1509404



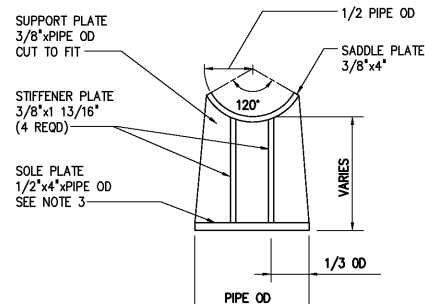
PIPE SUPPORT BRACKET

1509406



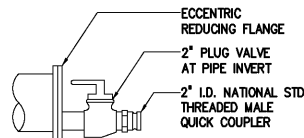
FABRICATED PIPE SUPPORT (AT FLANGE)

1509409



FABRICATED PIPE SUPPORT (AT PIPE)

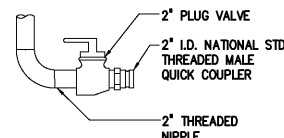
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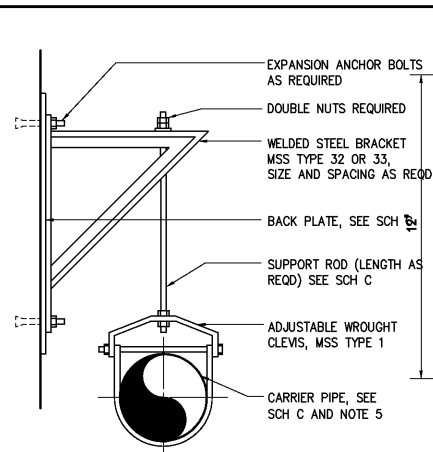
TYPE I

FLUSHING CONNECTIONS

1511501



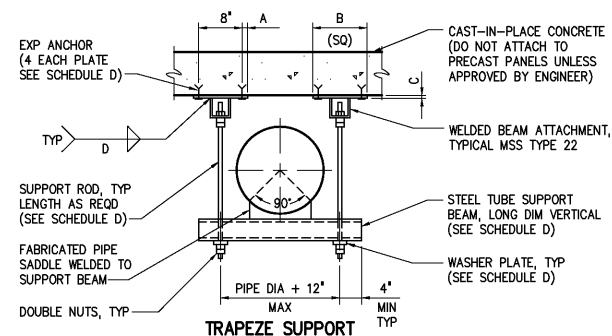
TYPE II



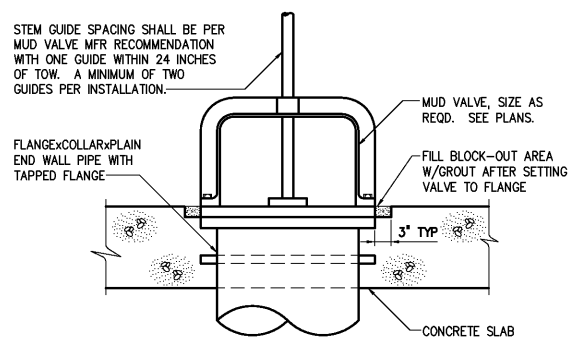
PIPE SUPPORT BRACKET

1509407

SCHEDULE D											
TRAPEZE SUPPORT (DIM IN INCHES)											
PIPE SIZE	STEEL TUBE SUPPORT BEAM VERT x HOR	MINIMUM ROD Ø (INCHES)		WASHER PLATE	BASE PLATE			WELD	EXP ANCHOR DIA x LENGTH	MAX SUPPORT SPACING IN FEET (SEE NOTE B)	
		PROCESS PIPING	STEEL AIR PIPING		A	B	C			D	PROCESS PIPING
12-14	4x4x3/8	1/2	1/2	4x4x1/4	1	10	3/8	3/16	1/2 x 4	10	15
16-24	4x4x3/8	3/4	5/8	4x4x3/8	1	10	1/2	3/16	5/8 x 5	10	15
30-36	6x4x3/8	1	3/4	4x4x1/2	2	12	1/2	1/4	3/4 x 6	10	20
42	6x4x3/8	1 1/4	3/4	5x5x1/2	2	12	3/4	1/4	7/8 x 6	10	25
48	8x4x3/8	1 1/2	1	5x5x3/4	2	12	1	1/4	1 x 7	10	30

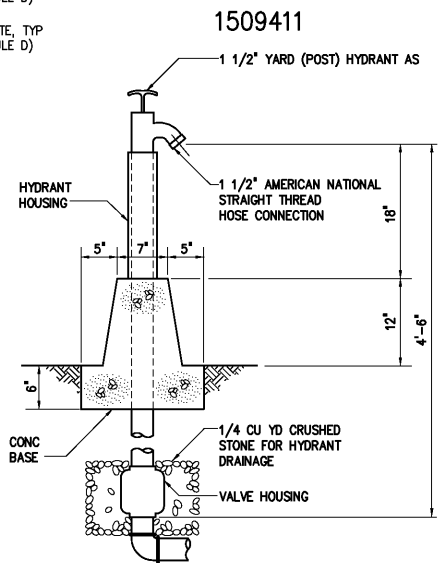


1509413



MUD VALVE INSTALLATION

1510401



YARD HYDRANT

1511502R

NOTES:

- MSS REFERS TO THE MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY, STANDARD PRACTICE SP-58 AND SP-69.
- PIPE WALL SUPPORT AND PIPE SUPPORT RACK SHALL BE ASSEMBLED WITH CHANNEL FRAMES AND ACCESSORIES AS MANUFACTURED BY UNISTRUT CORP. OR VERSABAR CORP. OR EQUAL.
- FABRICATED PIPE SUPPORT MAY BE USED AS SHOWN IN PIPE SUPPORT RACK DETAIL, OR TO SUPPORT PIPE FROM THE FLOOR.
- BACK PLATES SHALL BE DESIGNED BY THE CONTRACTOR ACCORDING TO WALL TYPES AND THE WEIGHTS INVOLVED. BACK PLATE TO BE SUPPLIED BY BRACKET MANUFACTURER.
- PIPE HANGERS, SUPPORTS AND BRACKETS ARE SHOWN HERE IN VARIOUS COMBINATIONS AS GENERAL DETAILS. THE CONTRACTOR SHALL DESIGN THE SUPPORT SYSTEM BASED ON ACTUAL WEIGHTS AND CONDITIONS AS SPECIFIED OR AS SHOWN ON THE CONTRACT DRAWINGS. THE PIPE SUPPORTS SHOWN AND REFERENCED UNDER SCHEDULES A, B & C ARE DESIGNED AND DETAILED FOR GRAVITY LOADING ONLY. RESULTING LATERAL LOADS FROM CONSTRUCTION CONDITIONS, DESIGN SEISMIC EVENT OR OTHER RELATED CONDITIONS SHALL BE APPLIED TO THE PIPE AND OTHER NON-STRUCTURAL COMPONENTS IN ACCORDANCE WITH THE GOVERNING BUILDING CODE. SUPPLEMENTAL LATERAL STIFFNESS, RESISTANCE AND MEMBERS (WHEN NECESSARY) SHALL BE PROVIDED ALONG PIPE OR AT GRAVITY SUPPORTS AND CONNECTIONS WHEN REQUIRED BY CALCULATIONS. THE CONTRACTOR SHALL INCLUDE DESIGN CALCULATIONS AND DETAILS WITH ALL PIPE HANGER AND SUPPORT SUBMISSIONS FOR REVIEW BY THE ENGINEER. THE MAIN STRUCTURE AND STRUCTURAL COMPONENTS THAT WILL SUPPORT THE PIPE HANGERS AND OTHER APPURTENANT COMPONENTS OF THE FACILITY HAVE BEEN DESIGNED TO RESIST ALL RESULTING SECONDARY LATERAL LOADING FROM NON-STRUCTURAL MEMBERS FOR GRAVITY AND LATERAL LOADS. ALL INSULATED PIPES SHALL USE A SHIELD (MSS TYPE 40) WITH THE APPLICABLE PIPE SUPPORT. MINIMUM OF ONE HANGER PER PIPE SECTION, CLOSE TO JOINT, ON THE BARREL ALSO AT CHANGE IN DIRECTION AND BRANCH CONNECTIONS. RODS AND SPACING ARE BASED ON STANDARD WEIGHT MATERIALS ACCORDING TO MSS SP-69. AND ARE FOR REFERENCE ONLY. THE CONTR SHALL SPACE HIS HANGERS BASED ON ACTUAL CONDITIONS. REFER TO THE APPROPRIATE AND RELATED SPECIFICATION SECTIONS AND DRAWINGS OF THE CONTRACT DOCUMENTS REGARDING SUPPLEMENTAL DESIGN REQUIREMENTS RELATING TO PERFORMANCE SUBMISSIONS BY CONTRACTOR. ALL NON-STRUCTURAL COMPONENTS, INCLUDING PIPING, HVAC DUCT, PLUMBING AND ELECTRICAL CONDUIT SUPPORT SYSTEMS SHALL BE ADEQUATELY DESIGNED AND INSTALLED UTILIZING SUFFICIENT CONNECTIONS AND MEMBERS TO ACCOMMODATE AND RESIST THE DESIGN LATERAL FORCES ASSOCIATED WITH A SPECIFIC COMPONENT'S DYNAMIC INERTIA DURING THE DESIGN SEISMIC EVENT. REFER TO THE CODE COMPLIANCE DRAWING FOR STRUCTURAL DESIGN INFORMATION FOR SPECIFIC SEISMIC DESIGN CRITERIA.

1509411

DESIGNED	H & S
DRAWN	H & S
CHECKED	
PROJ. ENGR.	H & S
APPROVED	
NO.	

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**Hazen and Sawyer**

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CITY OF ROANOKE  
VIRGINIA

REGIONAL WATER POLLUTION CONTROL PLANT  
WET WEATHER IMPROVEMENTS

MISCELLANEOUS STANDARD DETAILS

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.

DATE JULY 2003

H & S JOB NUMBER 30788A

CONTRACT NUMBER A

DRAWING NUMBER D13