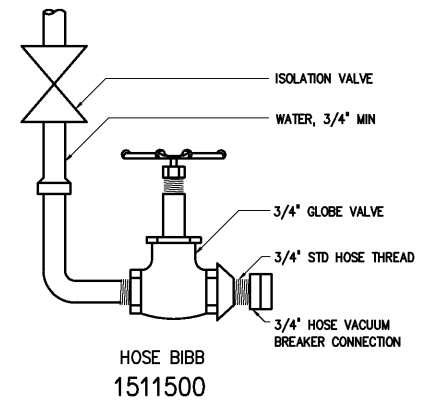
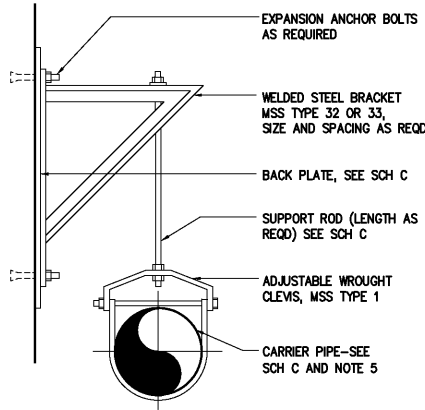


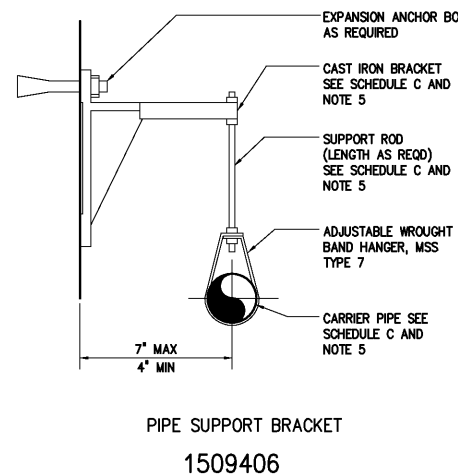
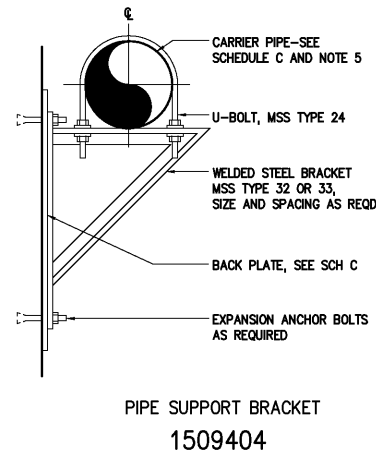
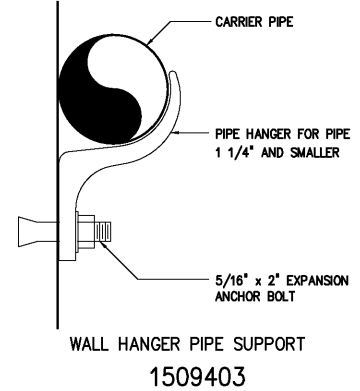
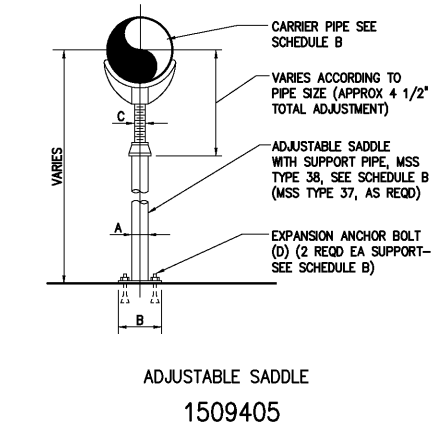
SCHEDULE A				
BASE ELBOW (TEE) (DIM IN INCHES)				
PIPE SIZE	A	B	C	D DIA x LG
3	1 1/2	5	4 7/8	1/2 x 5
4	2	6	5 1/2	5/8 x 5
5-6	2 1/2	7	VARIES	5/8 x 5
8-10	4	9	VARIES	5/8 x 5
12-16	6	11	VARIES	3/4 x 6
18-24	8	13 1/2	VARIES	3/4 x 6
30	10	16	23	7/8 x 7
36	12	19	26	7/8 x 7

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

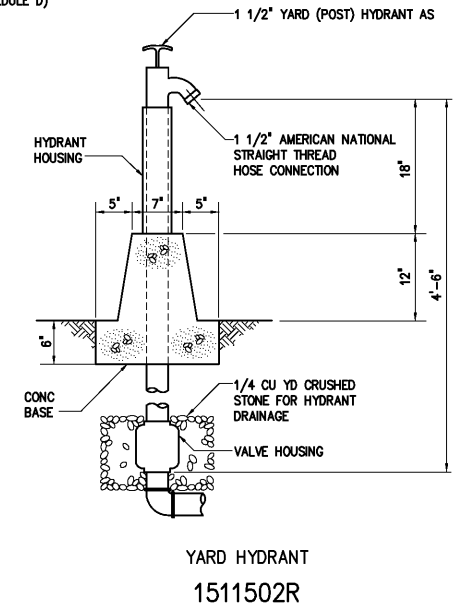
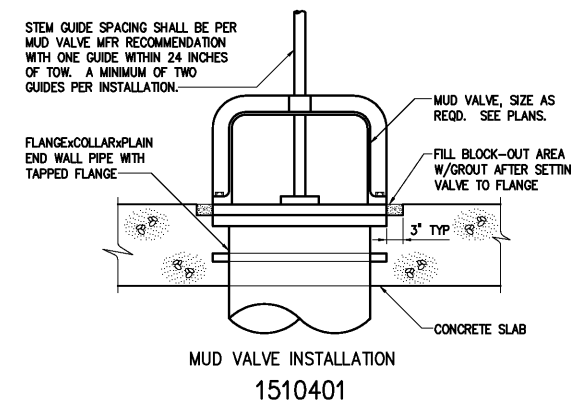
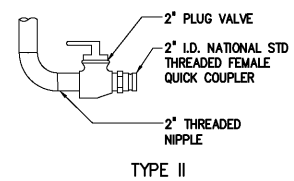
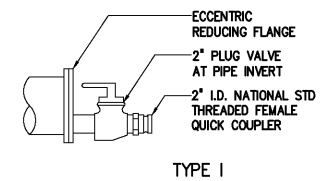
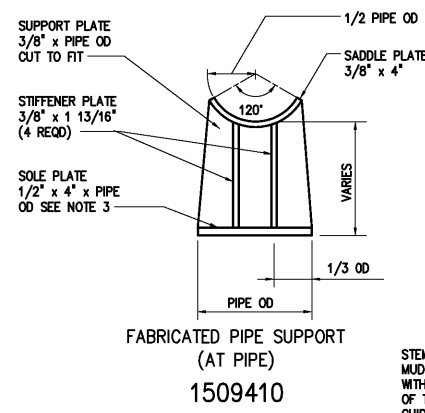
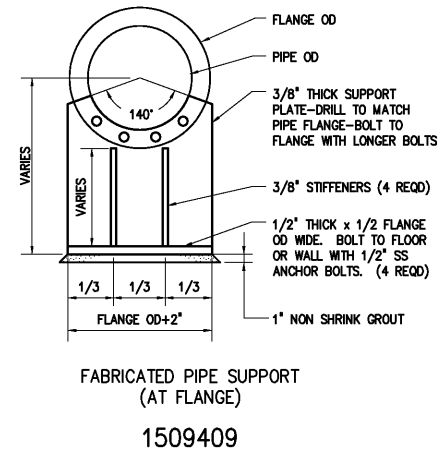
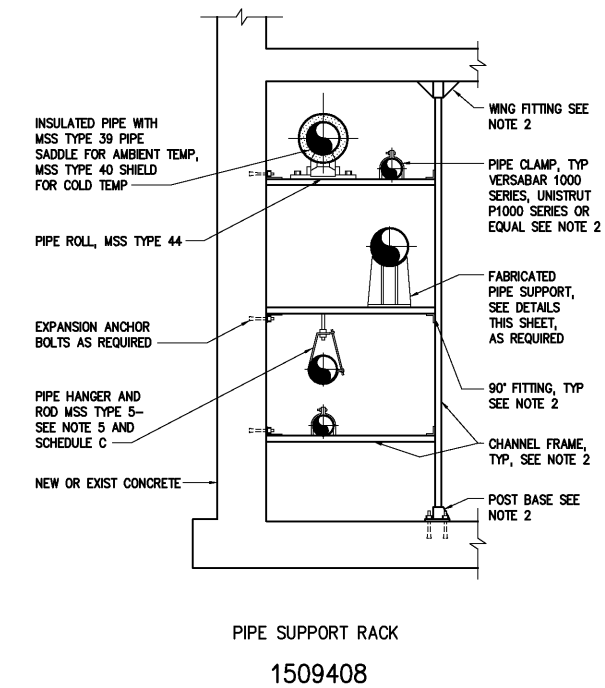
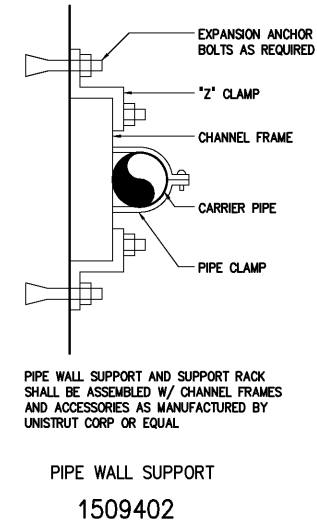
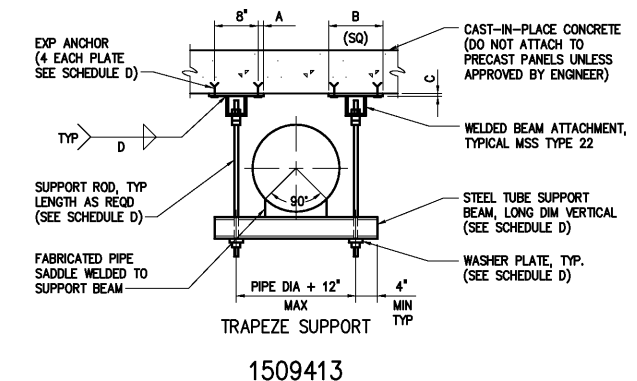
SCHEDULE C							
SUPPORT RODS AND BRACKET SPACING (FOR STANDARD WEIGHT PIPE)							
PIPE SIZE (INCHES)	BACK PLATE (INCHES)	MINIMUM ROD # (INCHES)		MAX SPAN IN FEET (SEE NOTE 8)			
		PROCESS PIPING	STEEL AIR PIPING	COPPER	PLASTIC	STEEL	DIP (SEE NOTE 7)
UP TO 1	SEE NOTE 4	3/8	3/8	5	5	6	-
1 1/4-2	"	3/8	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



- 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.
 - 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.



SCHEDULE D								
TRAPEZE SUPPORT (DIM. IN INCHES)								
PIPE SIZE	STEEL TUBE SUPPORT BEAM VERT. x HOR.	MINIMUM ROD # (INCHES)		WASHER PLATE	BASE PLATE			
		PROCESS PIPING	STEEL AIR PIPING		A	B	C	D
12-14	4x4x3/8	1/2	1/2	4x4x1/4	1	10	3/8	3/16
16-24	4x4x3/8	3/4	5/8	4x4x3/8	1	10	1/2	3/16
30-36	6x4x3/8	1	3/4	4x4x1/2	2	12	1/2	1/4
42	6x4x3/8	1 1/4	3/4	5x5x1/2	2	12	3/4	1/4
48	8x4x3/8	1 1/2	1	5x5x3/4	2	12	1	1/4



<table border="1"> <tr><td>DESIGNED</td><td>H & S</td></tr> <tr><td>DRAWN</td><td>H & S</td></tr> <tr><td>CHECKED</td><td></td></tr> <tr><td>PROJ. ENGR.</td><td>H & S</td></tr> <tr><td>APPROVED</td><td></td></tr> </table>				DESIGNED	H & S	DRAWN	H & S	CHECKED		PROJ. ENGR.	H & S	APPROVED		<p>THIS DOCUMENT ORIGINALLY ISSUED FOR CONSTRUCTION AND SEALED BY ROBERT S. DIFIORE, SEAL NO. 22769</p> <p>THIS DOCUMENT ORIGINALLY ISSUED FOR CONSTRUCTION AND SEALED BY RONALD L. TAYLOR, SEAL NO. 024649</p>		<p>RECORD DRAWING</p> <p>THIS DRAWING HAS BEEN MODIFIED TO REFLECT FIELD CHANGES REPORTED BY THE CONTRACTOR OR ANOTHER PARTY, BUT NOT VERIFIED BY THE CERTIFYING ENGINEER. THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY DAVID A. NAILOR, 025465. THIS MEDIA SHALL NOT BE CONSIDERED A CERTIFIED DOCUMENT.</p>		<p>HAZEN AND SAWYER Environmental Engineers & Scientists 4011 WestChase Blvd, Raleigh, North Carolina 27607</p>		<p>CITY OF ROANOKE VIRGINIA</p> <p>REGIONAL WATER POLLUTION CONTROL PLANT PROCESS TRAIN IMPROVEMENTS</p>		<p>MISCELLANEOUS STANDARD DETAILS</p>		<p>THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.</p>		<p>DATE JANUARY 2004</p> <p>H & S JOB NUMBER 30788C</p> <p>CONTRACT NUMBER C</p> <p>DRAWING NUMBER D12</p>	
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