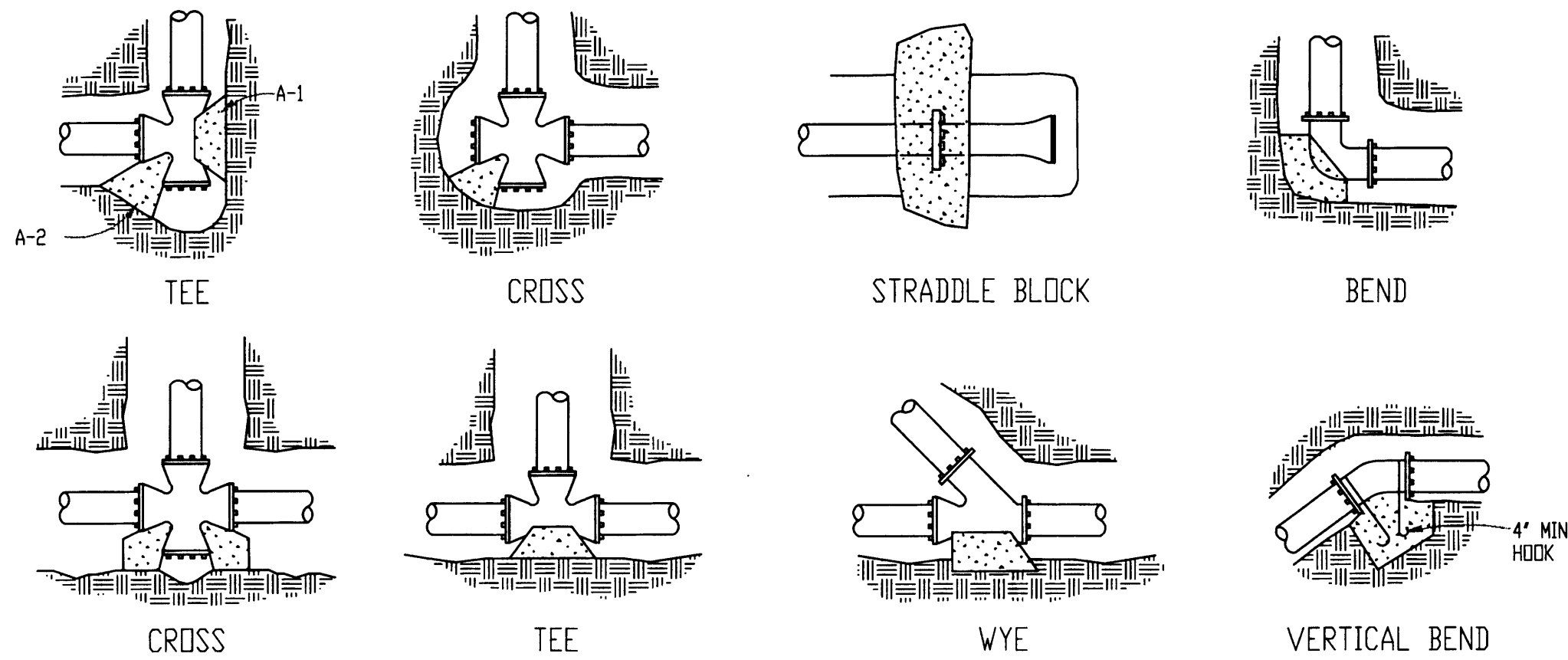


# WATERMAIN AS-BUILTS JULY 15, 2004

(HORIZONTAL) BEARING AREA OF THRUST BLOCKS IN SQUARE FEET							(VERTICAL) VOLUME OF THRUST BLOCK IN CUBIC YARDS					
FITTING SIZE	TEE, WYE, DEAD END AND HYDRANT	STRADDLE BLOCK	90° BEND PLUGGED CROSS	TEE PLUGGED ON RUN		45° BEND	22-1/2° BEND	11-1/4° BEND	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND
				A-1	A-2							
4	1.0	1.6	1.4	1.9	1.4	1.0	---	---	---	---	---	---
6	2.1	3.7	3.0	4.3	3.0	1.6	1.0	---	1.3	---	---	---
8	3.8	6.5	5.3	7.6	5.4	2.9	1.5	1.0	2.3	1.1	---	---
10	5.9	10.2	8.4	11.8	8.4	4.6	2.4	1.2	3.7	1.8	---	---
12	8.5	14.7	12.0	17.0	12.0	6.6	3.4	1.7	5.5	2.8	1.2	---

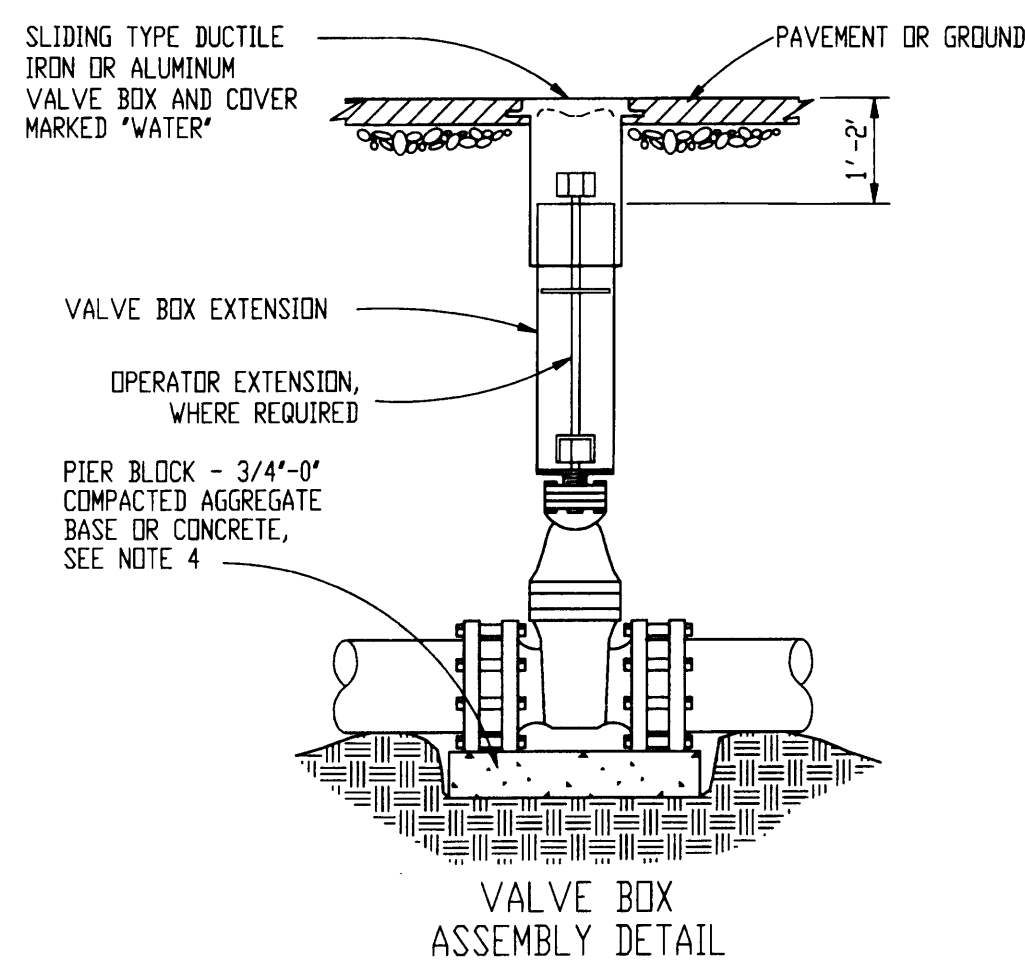
NOTES:  
 1. ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 PSI AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION:  
 $BEARING\ AREA = (TEST\ PRESSURE / 150) \times (2000 / SOIL\ BEARING\ STRESS) \times (TABLE\ VALUE)$   
 2. ABOVE VOLUMES BASED ON TEST PRESSURE OF 150 PSI AND THE WEIGHT OF CONCRETE = 4050 POUNDS PER CUBIC YARD. TO COMPUTE FOR DIFFERENT TEST PRESSURES, USE THE FOLLOWING EQUATION:  
 $VOLUME = (TEST\ PRESSURE / 150) \times (TABLE\ VALUE)$



RODS FOR VERTICAL BENDS		
FITTING SIZE	ROD SIZE	EMBEDMENT
12" AND LESS	#6	36"
14"-16"	#8	36"

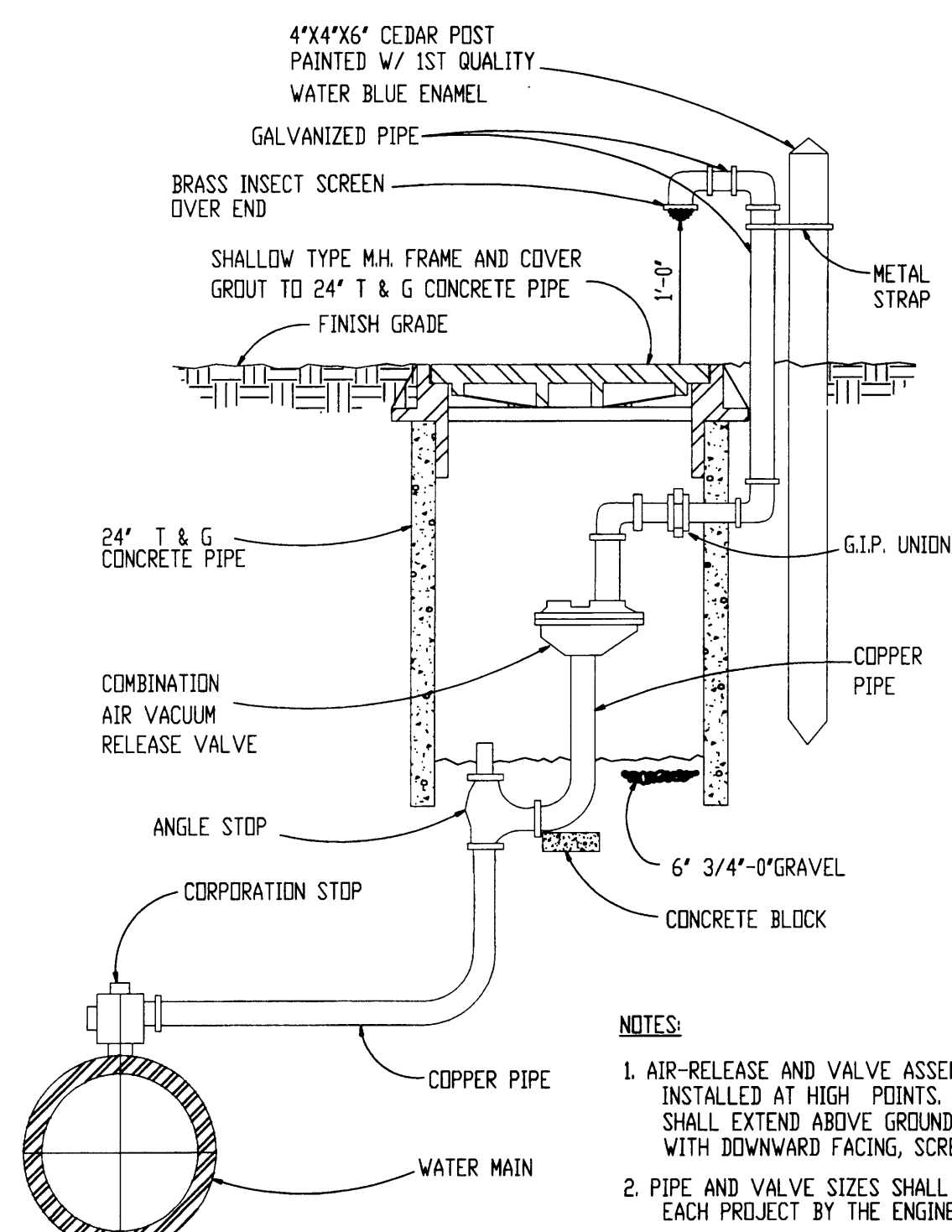
NOTES:  
 1. CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.  
 2. ALL CONCRETE TO BE CLASS 2400 MINIMUM.  
 3. INSTALL ISOLATION MATERIAL BETWEEN PIPE AND/OR FITTINGS BEFORE POURING CONCRETE BLOCKING.  
 4. CONCRETE SHALL BE KEPT CLEAR OF ALL JOINTS AND ACCESSORIES.  
 5. TIE RODS SHALL BE DEFORMED GALVANIZED COLD ROLLED STEEL, 40000 PSI TENSILE STRENGTH.

1 THRUST BLOCKING  
N.T.S.



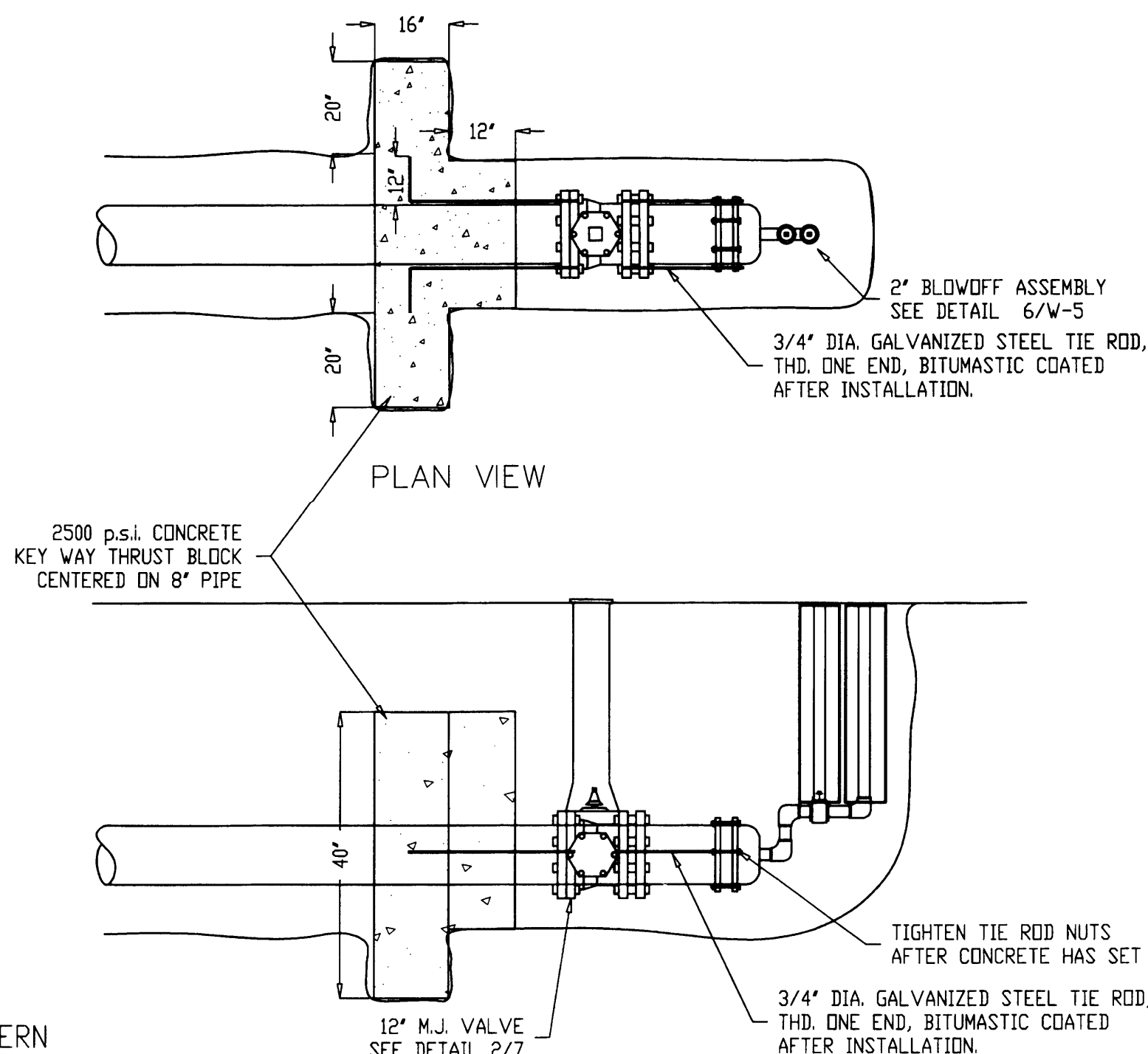
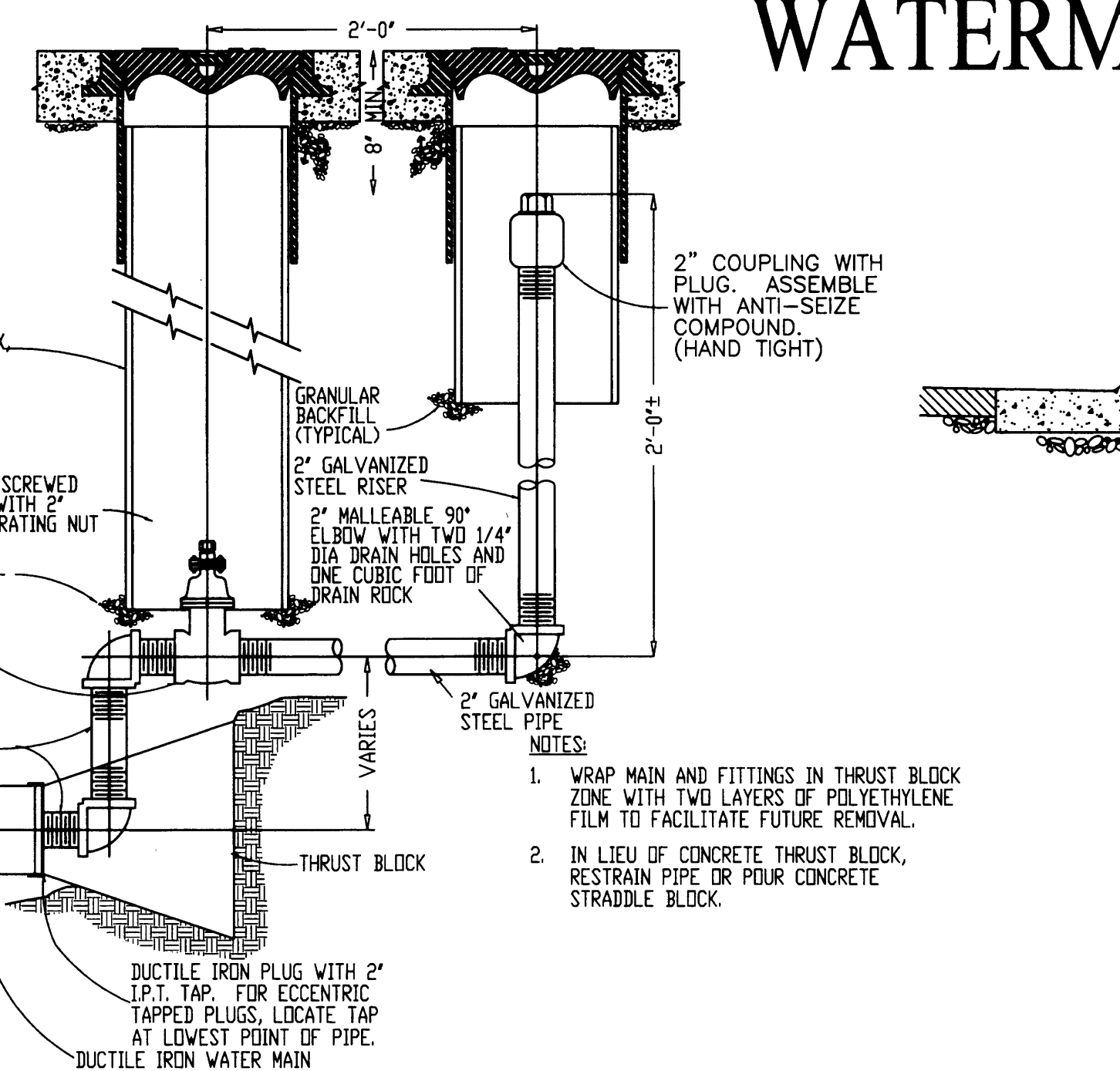
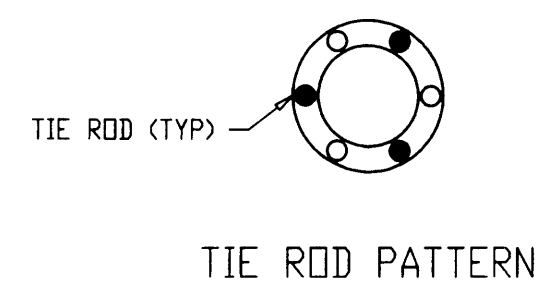
NOTES:  
 1. VALVE BOX NOT TO REST ON OPERATING ASSEMBLY.  
 2. OPERATOR EXTENSION REQUIRED WHEN VALVE NUT IS DEEPER THAN 4 FEET FROM FINISH GRADE.  
 3. CENTER VALVE BOX ON AXIS OF OPERATOR NUT.  
 4. VALVES 12" AND SMALLER SHALL BE PROVIDED WITH CLASS B BASE ON UNDISTURBED GROUND. VALVES GREATER THAN 12" SHALL BE INSTALLED ON PRECAST CONCRETE PIER BLOCK.  
 5. VALVE BOX EXTENSION SHALL BE CAST IRON OR PVC (ASTM D 3034).

2 VALVE ASSEMBLY  
N.T.S.

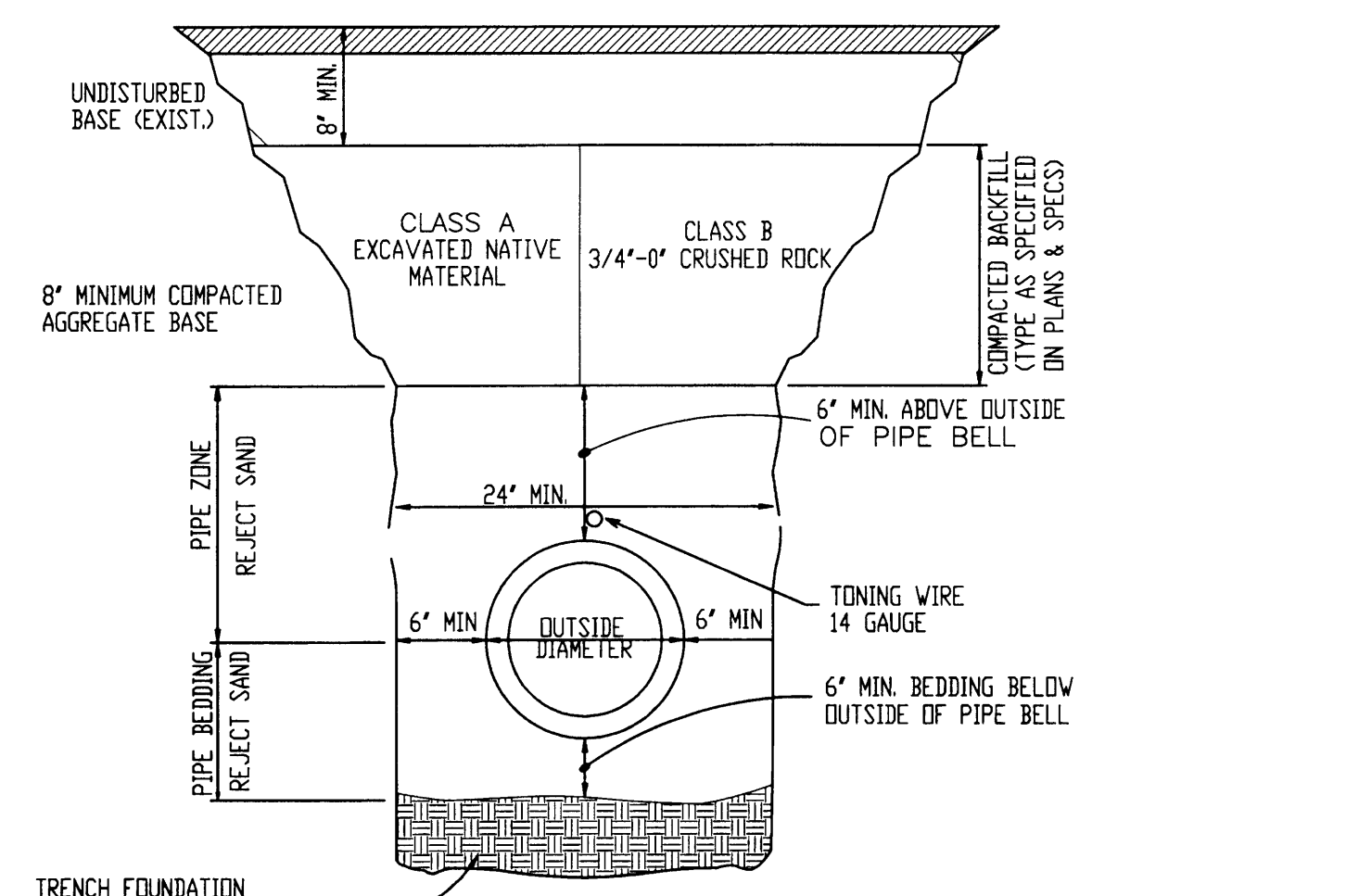


NOTES:  
 1. AIR-RELEASE AND VALVE ASSEMBLIES SHALL BE INSTALLED AT HIGH POINTS. THE BREATHER TUBE SHALL EXTEND ABOVE GROUND AND PROVIDED WITH DOWNWARD FACING, SCREENED ELBOW.  
 2. PIPE AND VALVE SIZES SHALL BE SPECIFIED FOR EACH PROJECT BY THE ENGINEER.

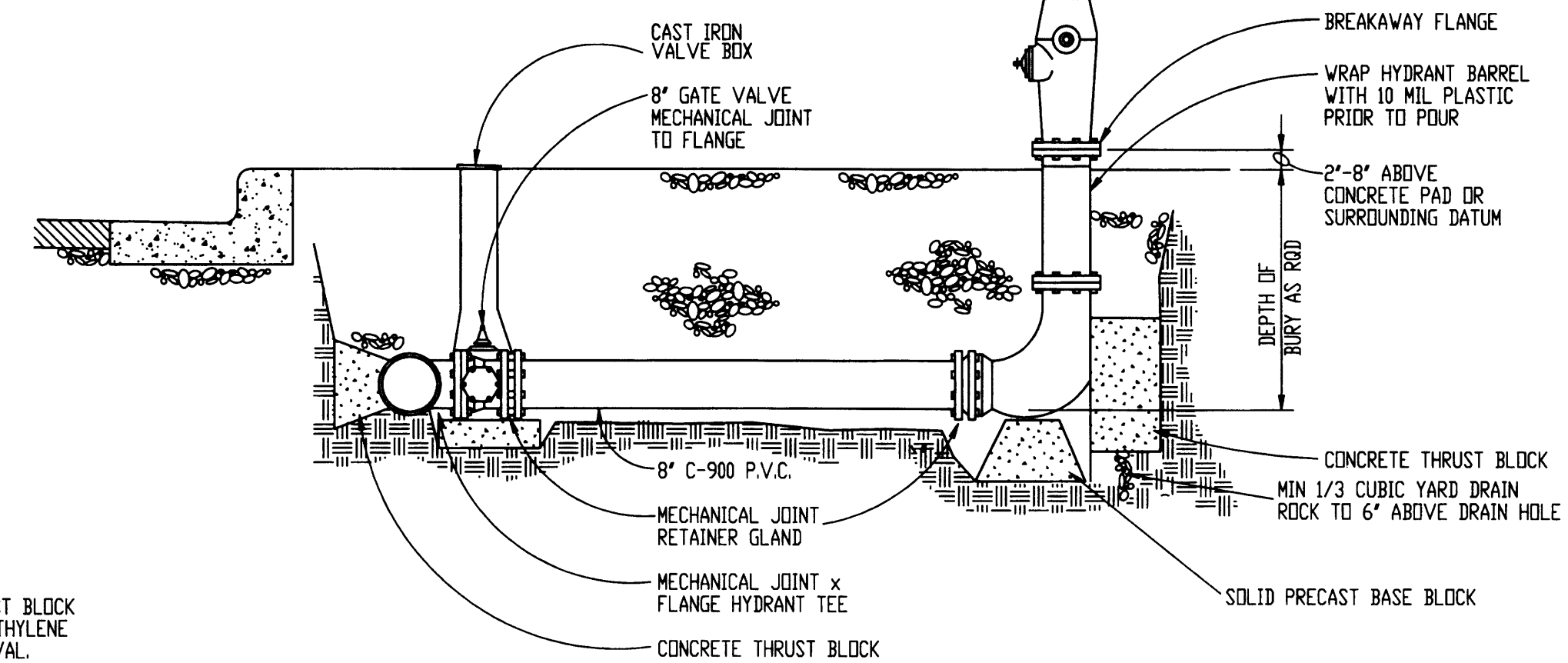
3 AUTOMATIC AIR RELEASE VALVE  
N.T.S.



4 BLOWOFF DETAIL  
N.T.S.

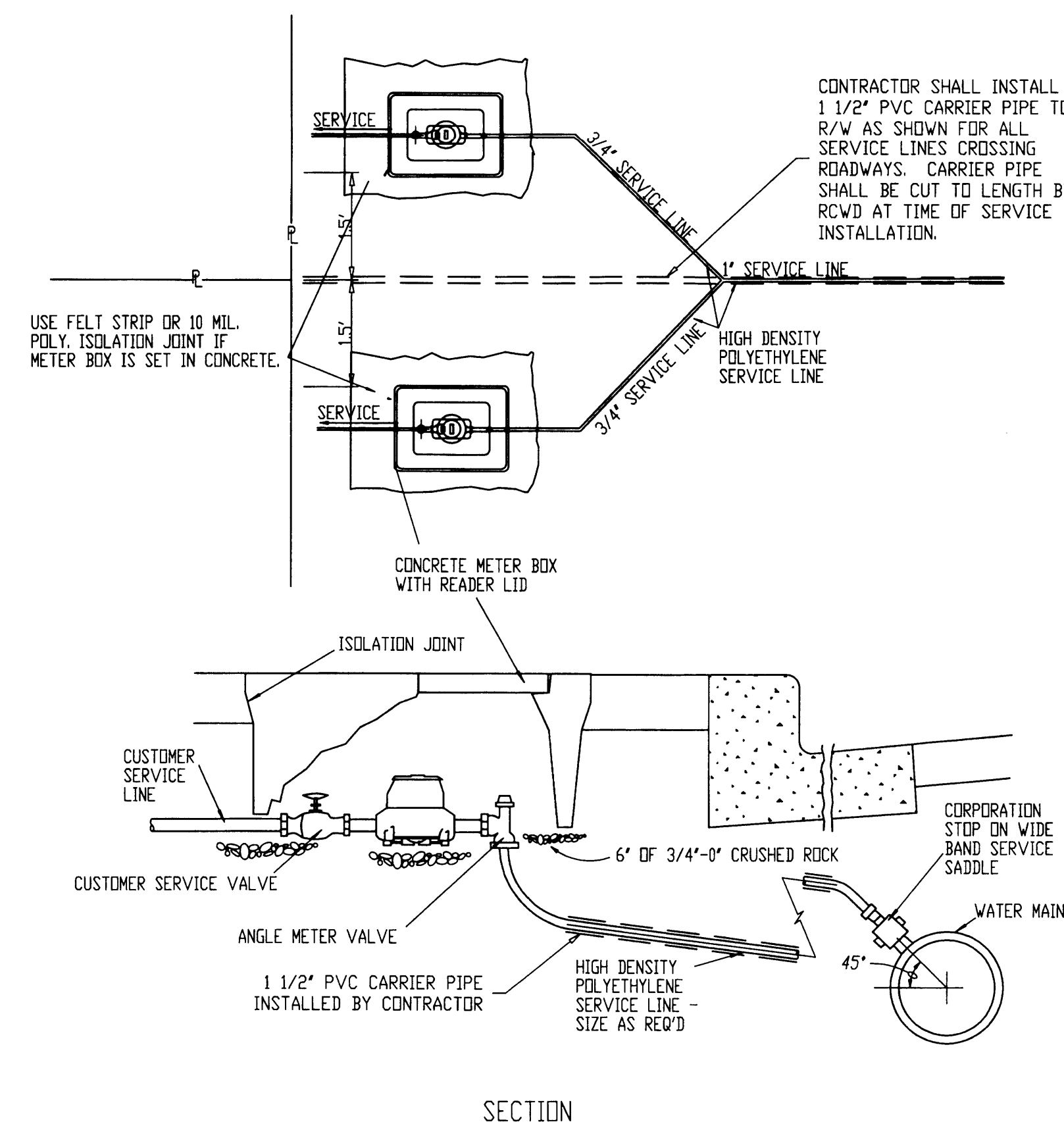


5 TYPICAL TRENCH DETAIL  
N.T.S.



NOTES:  
 1. WHEN PIPE IS SHORTER THAN 18', NO JOINTS ALLOWED. USE MECHANICAL JOINT RETAINER GLANDS @ HYDRANT & FITTINGS.  
 2. WHEN PIPE IS LONGER THAN 18', RETAINER GLANDS NOT REQUIRED, EXCEPT AT HYDRANT.  
 3. THERE SHALL BE A MINIMUM OF 18" HORIZONTAL CLEARANCE AROUND HYDRANT.  
 4. WHEN PLACED ADJACENT TO CURB, HYDRANT PORT SHALL BE 24" FROM FACE OF CURB.  
 5. CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED AS PER THRUST BLOCK STANDARD DRAWING. DO NOT BLOCK DRAIN HOLES.  
 6. EXTENSIONS REQUIRED FOR HYDRANT SYSTEMS SHALL BE INSTALLED TO THE MANUFACTURER'S SPECIFICATIONS.  
 7. FIRE HYDRANTS SHALL BE PLACED TO PROVIDE A MINIMUM OF 5' CLEARANCE FROM DRIVEWAYS, POLES, AND OTHER OBSTRUCTIONS.  
 8. HYDRANT PUMPER PORT SHALL FACE DIRECTION OF ACCESS.

6 FIRE HYDRANT  
N.T.S.



NOTES:  
 1. FOR REFERENCE ONLY. ROBERTS CREEK WATER DISTRICT SHALL INSTALL WATERLINE SERVICES AS REQUIRED.  
 2. CONTRACTOR SHALL INSTALL 1 1/2" CARRIER PIPE @ SERVICE LINES CROSSING ROADWAY.

7 WATER SERVICE DETAIL  
N.T.S.

OWNER: ERIK HELLENTHAL

ENGINEERING & SURVEYING, INC.  
 431 S.E. MAIN ST., ROSELAND, OR 97070  
 PHONE (503) 673-0966 FAX (503) 673-0105

BTS

## MELODY SUBDIVISION - PHASE I WATER MAIN DETAILS

PROJECT:

SHEET TITLE:

DATE: DECEMBER, 2001  
 REV. #1: 2/07/2002  
 REV. #2: 4/01/2002  
 REV. #3: 6/05/02  
 REV. #4: -  
 REV. #5: -

REGISTERED PROFESSIONAL  
 ENGINEER  
 DAVID G. PHILIPPI  
 OREGON  
 EXPIRATION DATE: 12/31/02

PROJ. #98-088  
 SHEET NO.

7 of 8