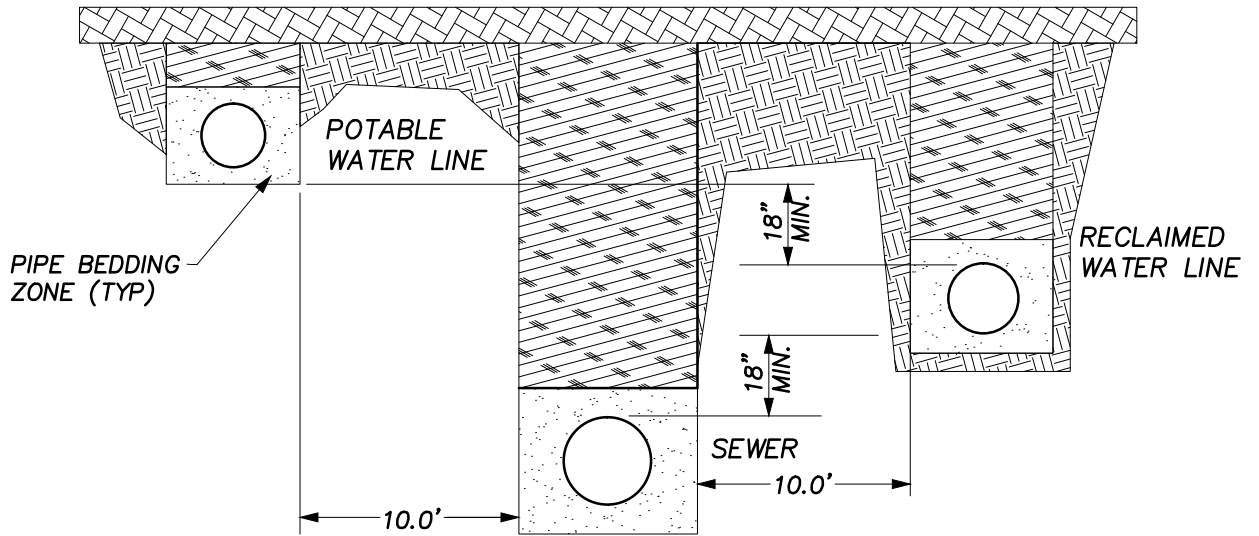
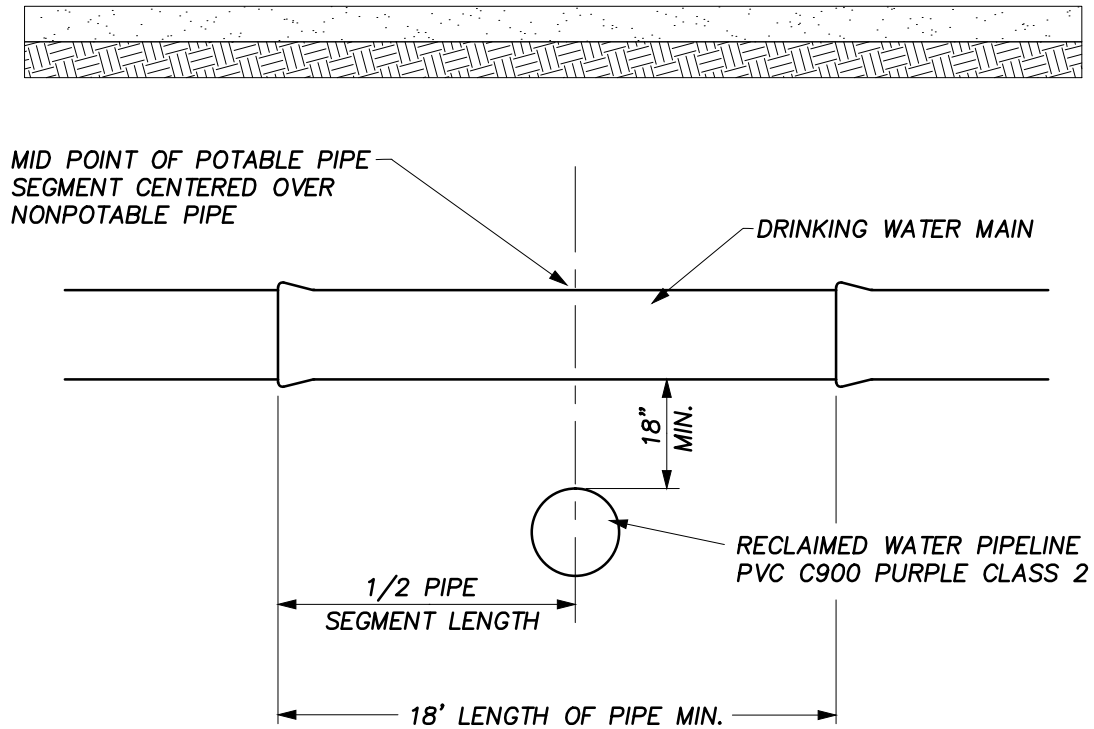


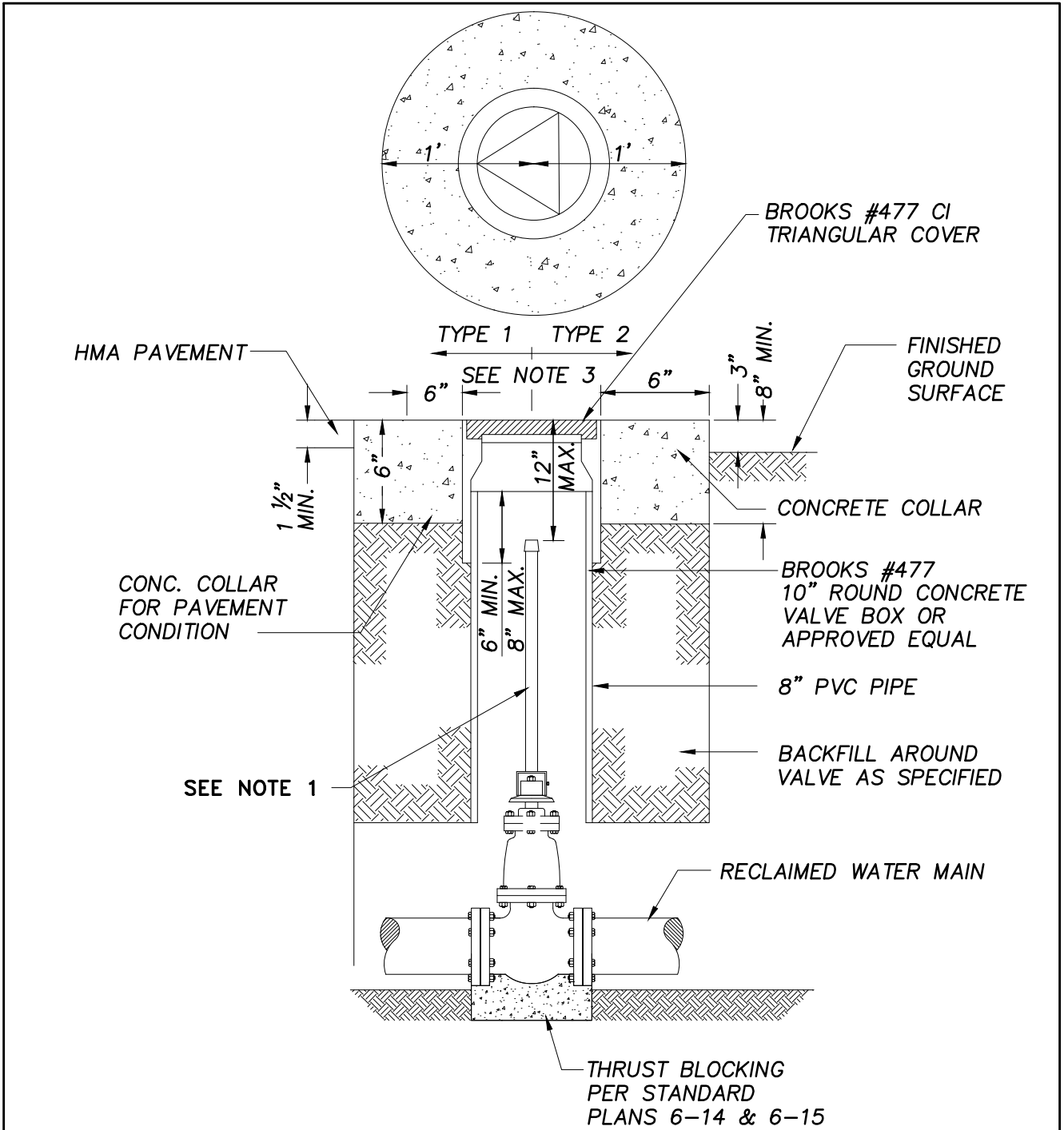
TYPICAL URBAN UTILITY PIPE SEPARATIONS



TYPICAL UTILITY PIPE CROSSING



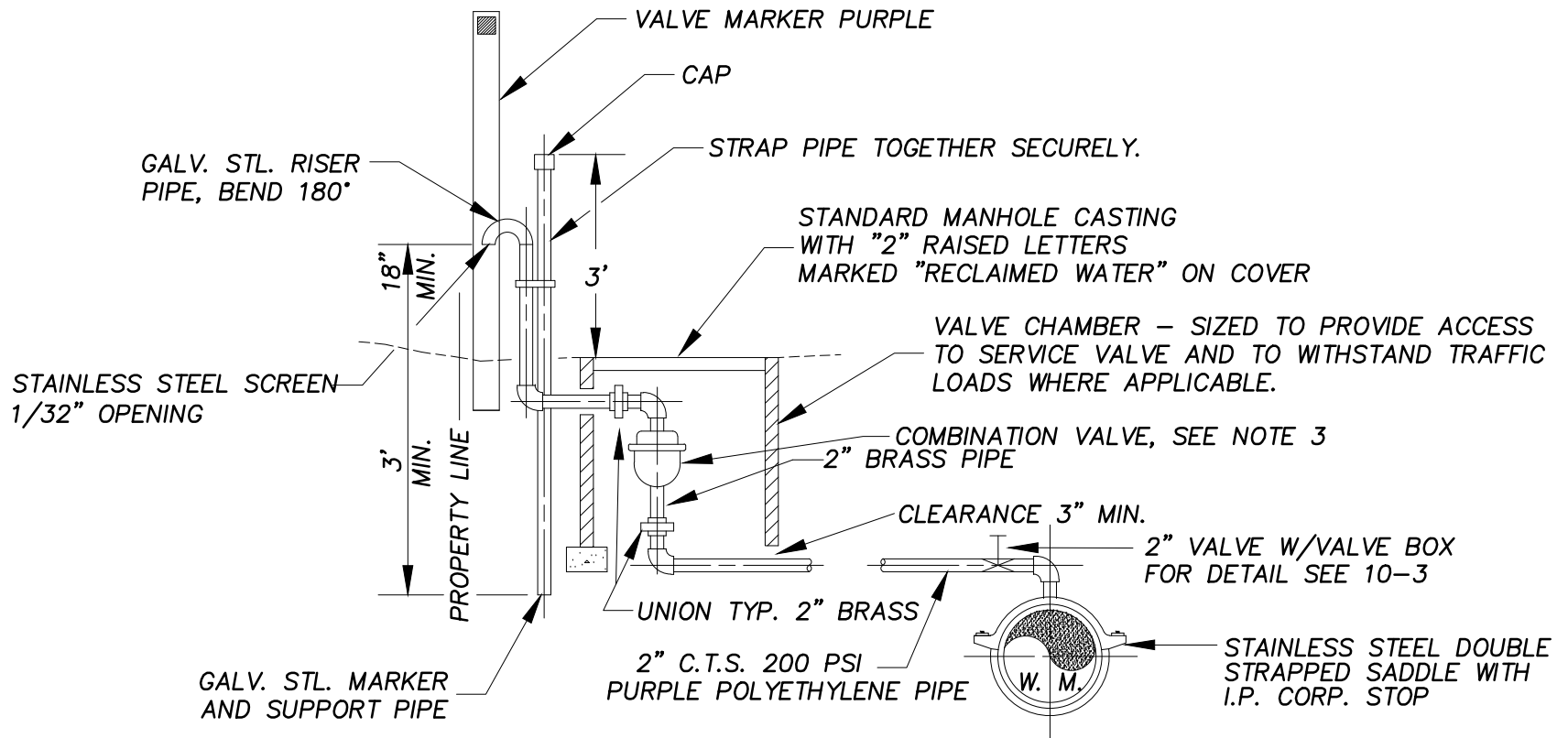
APPROVED BY	REVISED DATE	<b>CITY OF OLYMPIA</b>	STD. PLAN NO.
	12/14/05	HORIZONTAL AND VERTICAL SEPARATION OF RECLAIMED WATER MAINS FROM OTHER PIPING	10-1
CITY ENGINEER			



**NOTES:**

- 1. PROVIDE 3" TRIANGLE NUT TYPE VALVE STEM EXTENSION IF DEPTH TO VALVE NUT EXCEEDS 2 FEET.
- 2. VALVE BOX IS FOR H10 LOADINGS OR LESS.
- 3. TYPE 1 INSTALLATION APPLIES TO VALVES WITHIN ROADWAYS.  
TYPE 2 INSTALLATION APPLIES TO VALVES OUTSIDE ROADWAYS.
- 4. ALL PIPE TO BE PURPLE.

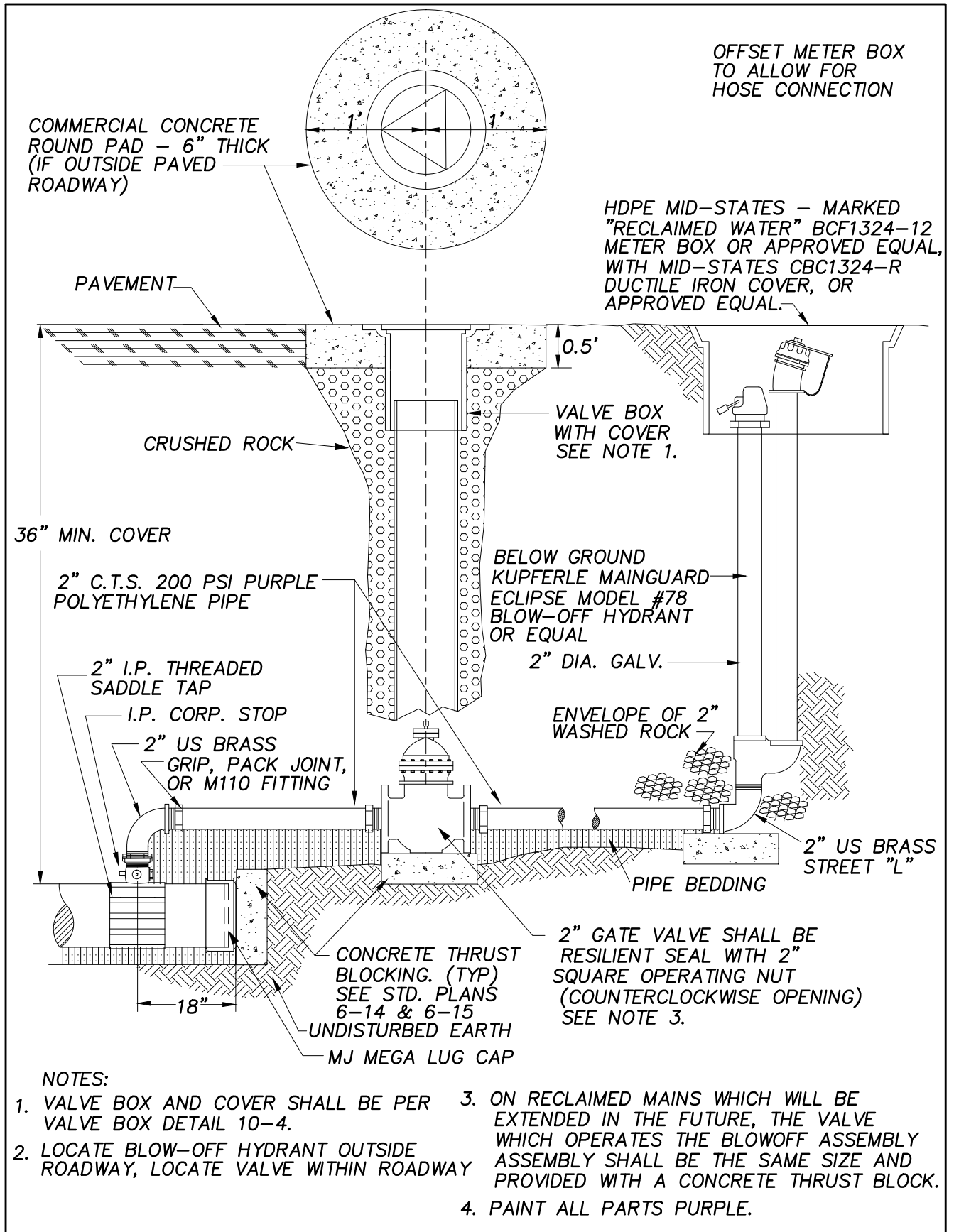
APPROVED BY	REVISED DATE	<b>CITY OF OLYMPIA</b>	STD. PLAN NO.
	1/28/09	RECLAIMED WATER	10-3
CITY ENGINEER		WATER VALVE AND VALVE BOX	



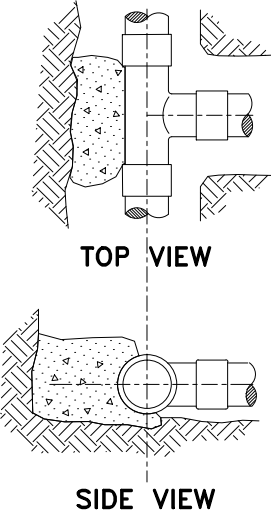
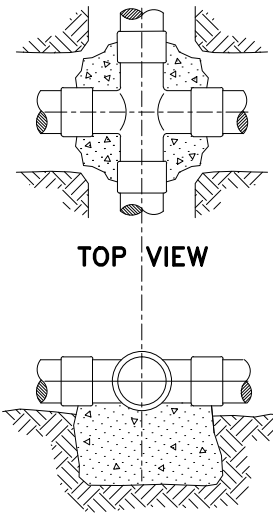
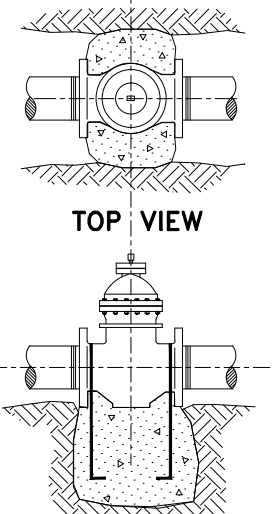
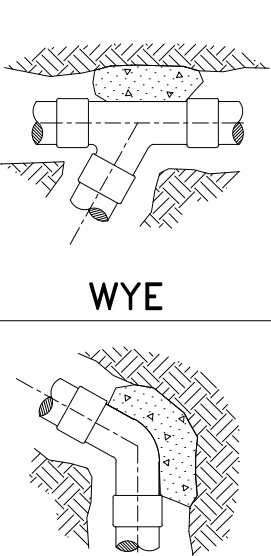
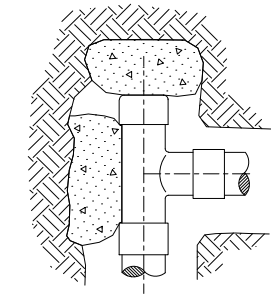
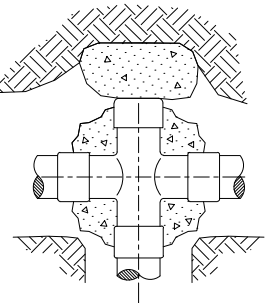
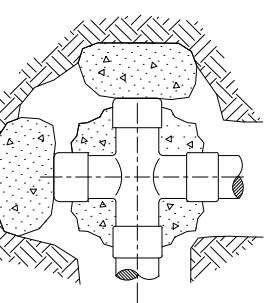
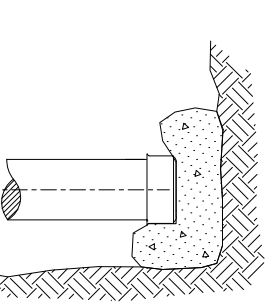
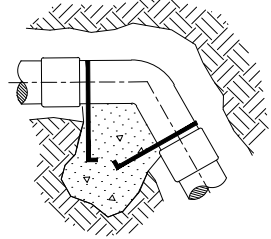
**NOTES:**

1. IF NOT SPECIFIED, SIZE OF PIPE SHALL BE SUBMITTED TO THE CITY FOR APPROVAL
2. SUBMIT SHOP DRAWINGS OF VALVE CHAMBER FOR APPROVAL
3. COMBINATION A.V./A.R. VALVE SHALL BE APCO 143C, 145C, 147C, 149C OR EQUAL AS DICTATED BY SIZE OF WATER MAIN. SUBMIT CALCULATIONS TO THE CITY FOR APPROVAL.
4. ALL RIGID PIPE AND FITTINGS BELOW AIR RELIEF PIPE SHALL BE US MADE BRASS.
5. ACTUAL PIPE SIZES ARE DEPENDENT ON VALVE SIZE.
6. PAINT ALL PARTS PURPLE.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
	2/27/08	RECLAIMED WATER COMBINATION AIR VACUUM/AIR RELEASE VALVE	10-5
CITY ENGINEER			



APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
	2/27/08	RECLAIMED WATER BLOW-OFF ASSEMBLY INSTALLATION	10-6
CITY ENGINEER			

 <p style="text-align: center;"><b>TOP VIEW</b></p> <p style="text-align: center;"><b>SIDE VIEW</b></p> <p style="text-align: center;"><b>TEE</b></p>	 <p style="text-align: center;"><b>TOP VIEW</b></p> <p style="text-align: center;"><b>SIDE VIEW</b></p> <p style="text-align: center;"><b>CROSS</b></p>	 <p style="text-align: center;"><b>TOP VIEW</b></p> <p style="text-align: center;"><b>SIDE VIEW</b></p> <p style="text-align: center;"><b>* GATE VALVE</b></p>	 <p style="text-align: center;"><b>WYE</b></p> <p style="text-align: center;"><b>HORIZ. BEND</b></p>
 <p style="text-align: center;"><b>TEE WITH PLUG</b></p>	 <p style="text-align: center;"><b>CROSS WITH PLUG</b></p>	 <p style="text-align: center;"><b>CROSS WITH PLUGS</b></p>	 <p style="text-align: center;"><b>PLUG OR CAP</b></p>
 <p style="text-align: center;"><b>45° - 90° VERTICAL BEND</b></p>	<p style="text-align: center;"><b>NOTES:</b></p> <ol style="list-style-type: none"> <li>1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.</li> <li>2. PLASTIC BARRIER SHALL BE PLACED BETWEEN ALL THRUST BLOCKS &amp; FITTINGS.</li> <li>3. ANCHOR REBAR SHALL BE #5 ON 12" DIA. AND LESS WITH 30" IMBEDMENT, #5 ON 16"-24" DIAMETER WITH 36" IMBEDMENT.</li> <li>4. PLUGS TO BE MINIMUM OF 5' FROM TEE, WYE, CROSS ON VALVE.</li> </ol> <p style="text-align: center;"><b>*IF IN THE OPINION OF THE CITY ENGINEER THE VALVE IS ON A SLOPE AND/OR THE COVER ON THE PIPE WOULD APPLY UPWARD THRUST, THEN THRUST BLOCKING WILL BE REQUIRED.</b></p>		
<p style="text-align: center;">APPROVED BY</p>	<p style="text-align: center;">REVISED DATE</p>	<p style="text-align: center;"><b>CITY OF OLYMPIA</b></p>	
<p style="text-align: center;">CITY ENGINEER</p>	<p style="text-align: center;">12/14/05</p>	<p style="text-align: center;"><b>RECLAIMED WATER STANDARD BLOCKING DETAIL</b></p>	
			<p style="text-align: center;">STD. PLAN NO. 10-7</p>

## THRUST LOADS

THRUST AT FITTINGS IN POUNDS AT 200 POUNDS PER SQUARE INCH OF WATER PRESSURE

PIPE DIAMETER	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND	DEAD END OR TEE
4"	3,600	2,000	1,000	500	2,600
6"	8,000	4,400	2,300	1,200	5,700
8"	14,300	7,700	4,000	2,000	10,100
10"	22,300	12,100	6,200	3,100	15,800
12"	32,000	17,400	8,900	4,500	22,700
14"	43,600	23,600	12,100	6,100	30,800
16"	57,000	30,800	15,700	7,900	40,300

### NOTES:

1. BLOCKING SHALL BE CEMENT CONCRETE CLASS "B" POURED IN PLACE AGAINST UNDISTURBED EARTH. FITTING SHALL BE ISOLATED FROM CONCRETE THRUST BLOCK WITH PLASTIC OR SIMILAR MATERIAL.
  
2. TO DETERMINE THE BEARING AREA OF THE THRUST BLOCK IN SQUARE FEET (S.F.):  
 EXAMPLE : 12" - 90° BEND IN SAND AND GRAVEL  
 $32,000 \text{ LBS} \div 3000 \text{ LB/S.F.} = 10.7 \text{ S.F. OF AREA}$
  
3. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZE, PRESSURES AND SOIL CONDITIONS.
  
4. BLOCKING SHALL BE ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.

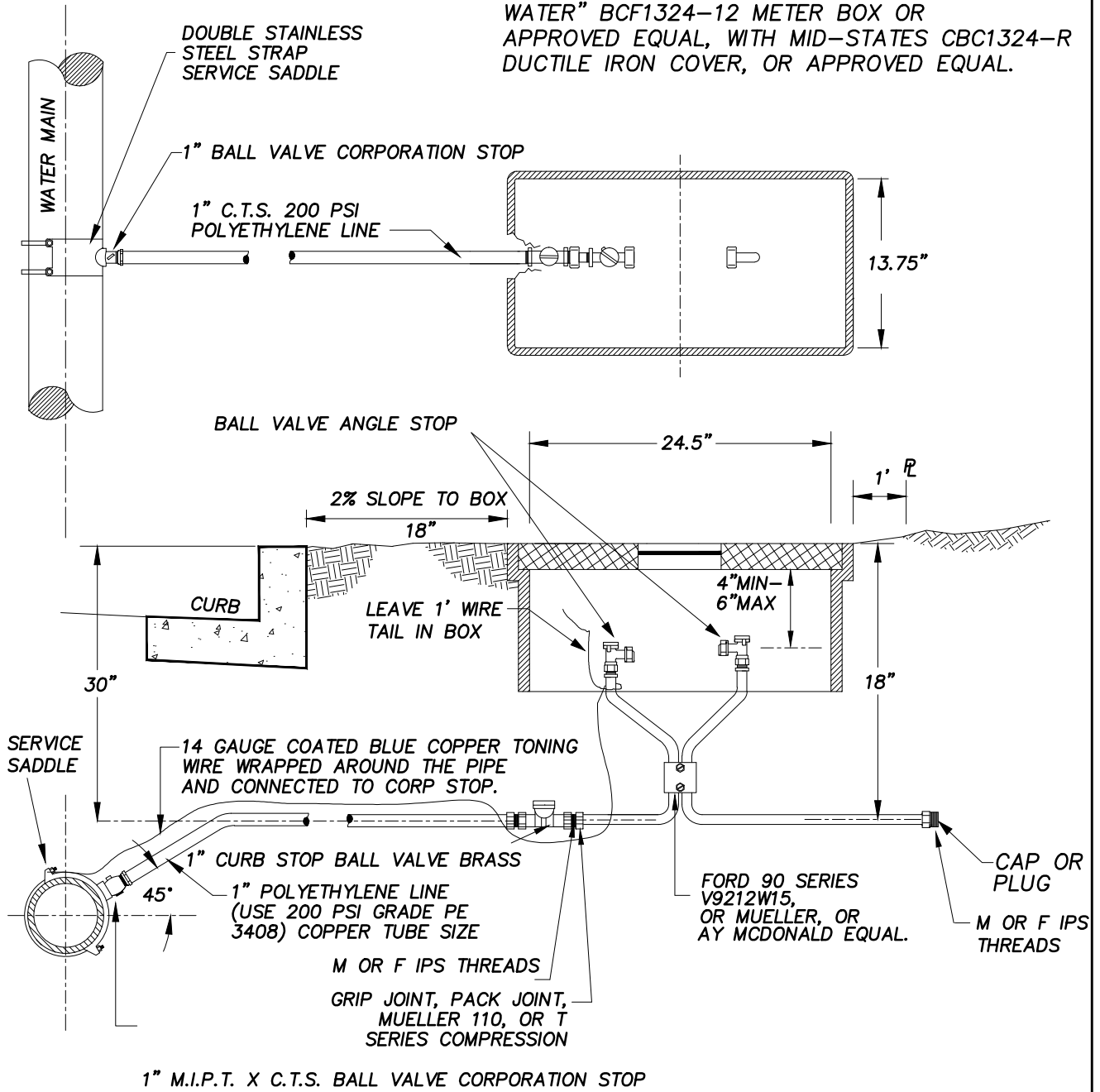
### SAFE SOIL BEARING LOADS

FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET

SOIL	POUNDS PER SQUARE FOOT
MUCK, PEAT	0
SOFT CLAY	1,000
SAND	2,000
SAND & GRAVEL	3,000
SAND & GRAVEL CEMENTED WITH CLAY	4,000
HARD SHALE	10,000

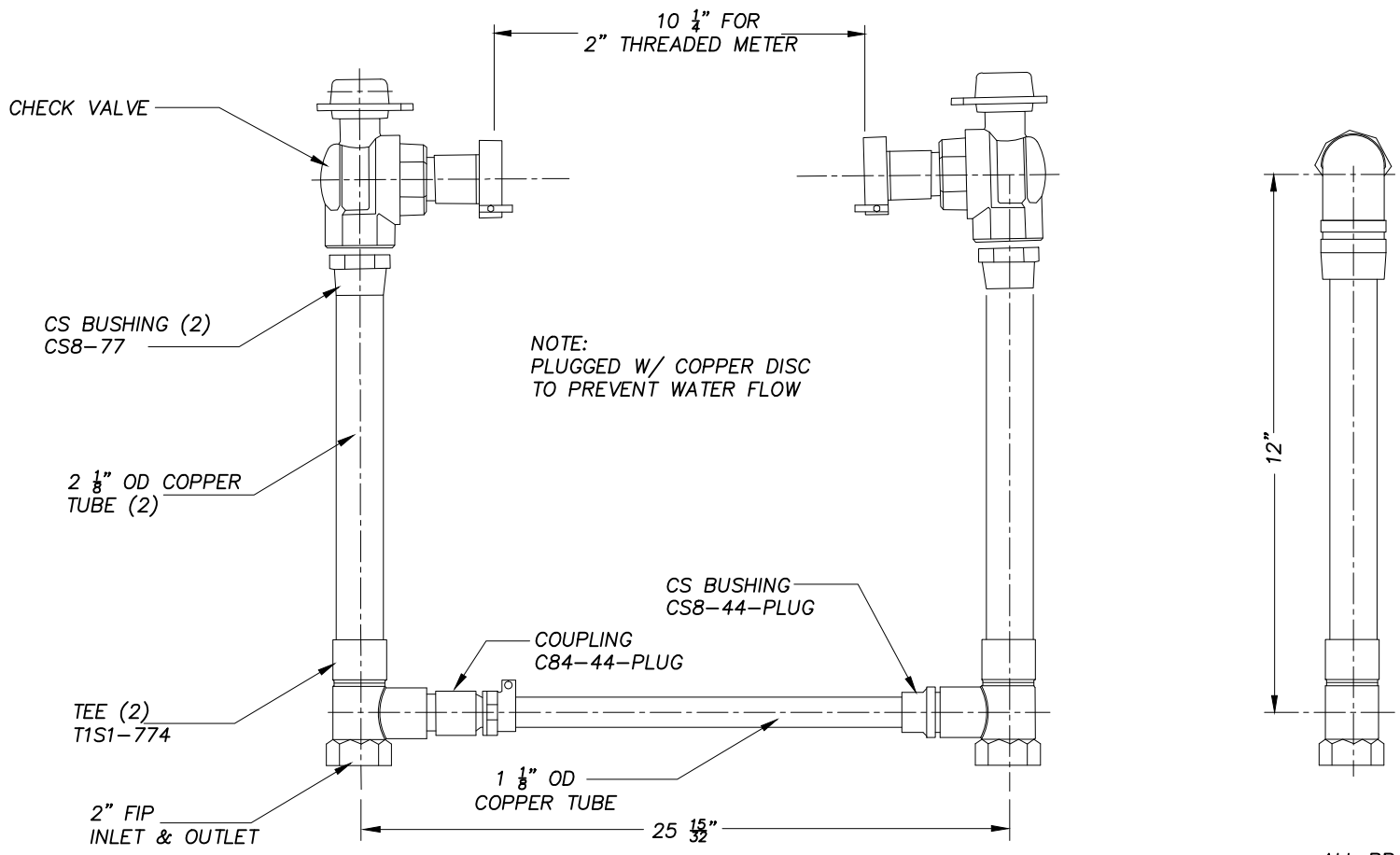
<i>APPROVED BY</i>	<i>REVISED DATE</i>	<i>CITY OF OLYMPIA</i>	<i>STD. PLAN NO.</i>
	04/26/93	RECLAIMED WATER THRUST LOADS	10-8
<i>CITY ENGINEER</i>			

HDPE MID-STATES – MARKED "RECLAIMED WATER" BCF1324-12 METER BOX OR APPROVED EQUAL, WITH MID-STATES CBC1324-R DUCTILE IRON COVER, OR APPROVED EQUAL.



- NOTES:
- CORPORATION STOPS SHALL BE ALL U.S. BRASS AND SHALL BE FORD D, MUELLER, OR MCDONALD, WITH THREADS CONFORMING TO AWWA C800. STAINLESS STEEL INSERTS REQUIRED FOR ALL PACK JOINTS OR GRIP JOINTS.
  - SETTER SHALL BE CENTERED IN BOX.
  - ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET, I.P. THREADS, AND STAINLESS STEEL DOUBLE STRAPS. TORQUE TO MANUFACTURES SPECIFICATIONS.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
	1/06/09	RECLAIMED WATER SETTER	10-9
CITY ENGINEER		1" DIAMETER	



NOTE:  
PLUGGED W/ COPPER DISC  
TO PREVENT WATER FLOW

NOTE: USE FORD VBRWH87-12-11-7710  
OR APPROVED EQUAL FOR 1 1/2" AND 2" SETTERS.

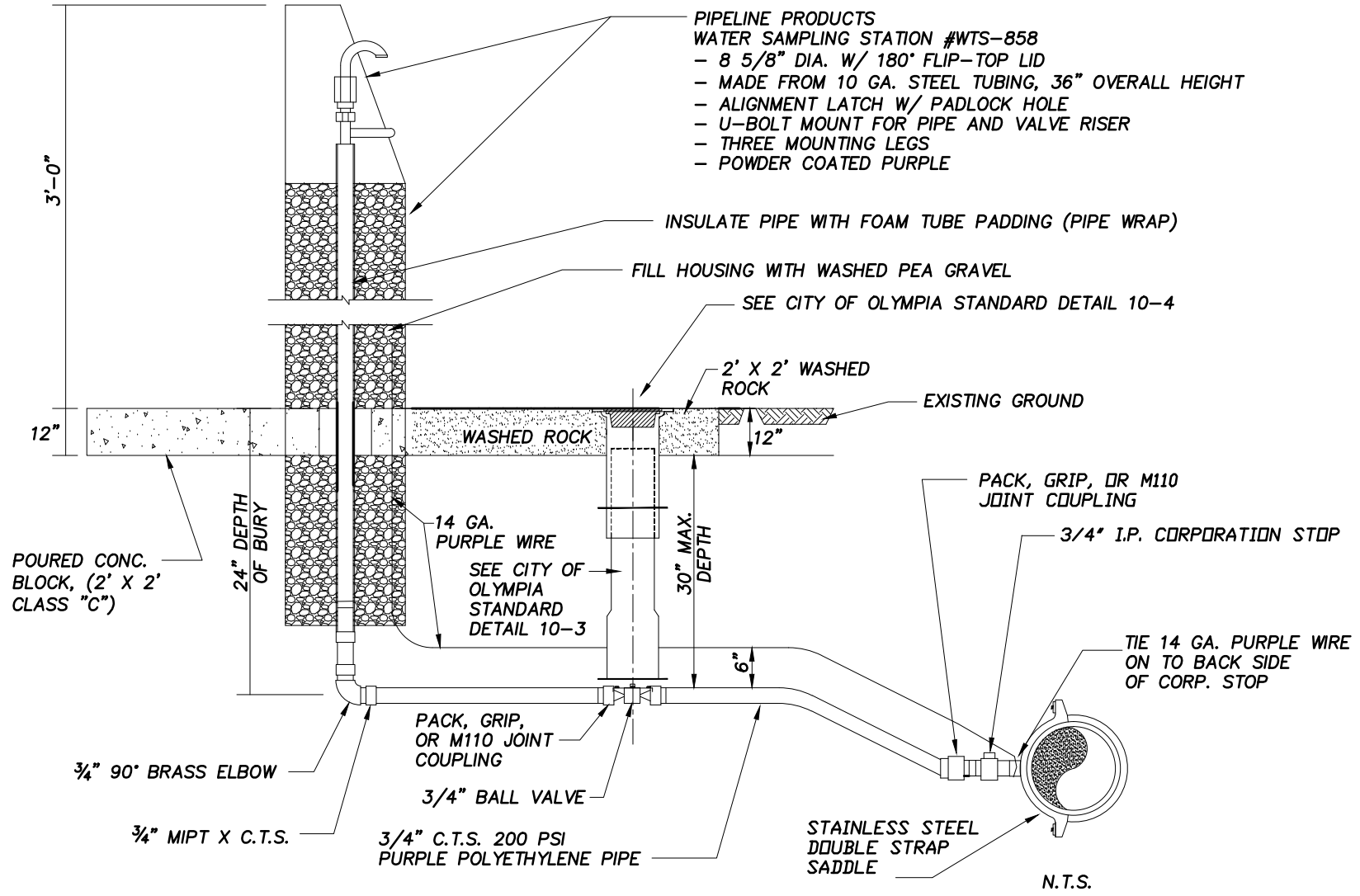
ALL BRASS OF  
85-5-5-5 RED BRASS  
UNS C83600  
AWWA C800-01  
ASTM B62-93

PAINT ALL PARTS PURPLE

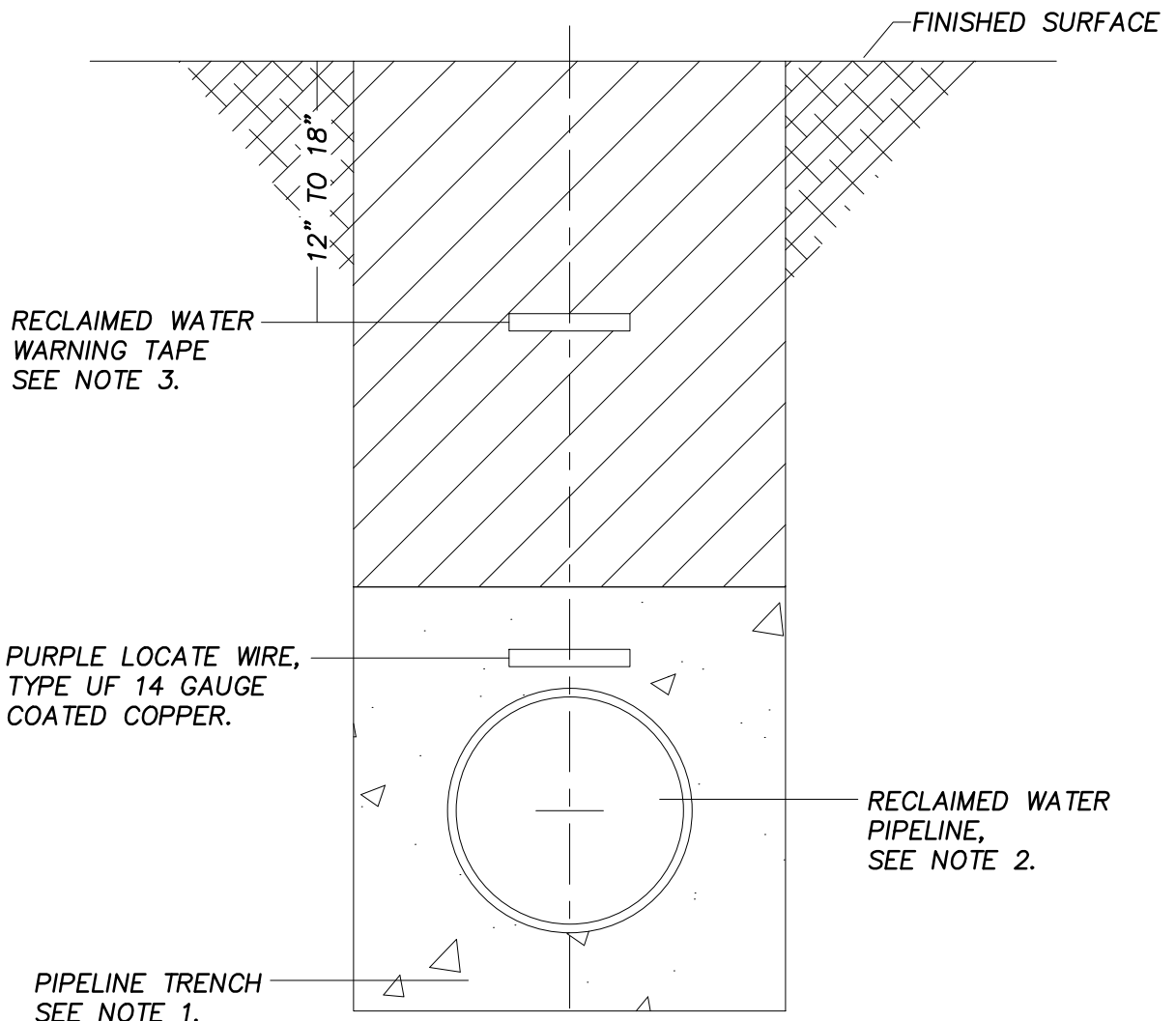
APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
CITY ENGINEER	1/06/09		10-10
		RECLAIMED WATER SETTER - 2" DIAMETER	



NOTE:  
ALL PIPE TO BE PURPLE



APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
	1/06/09	RECLAIMED WATER SAMPLING STATION	10-11
CITY ENGINEER			

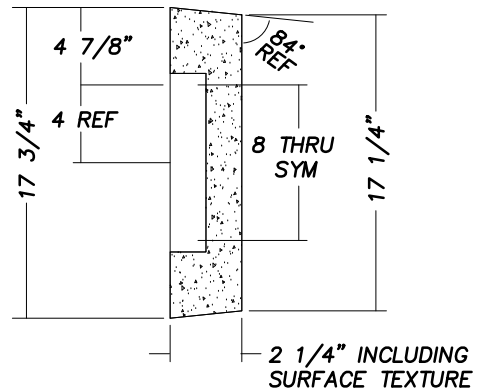
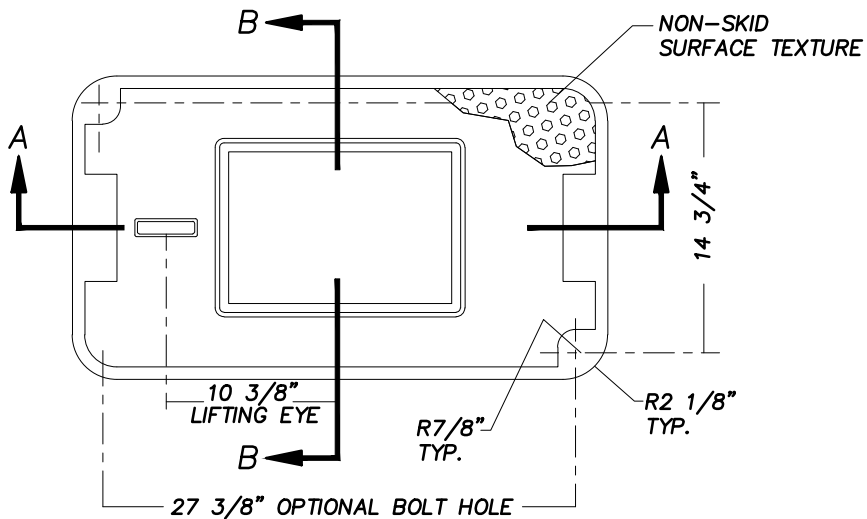


RECLAIMED WATER TRENCH

NOTES:

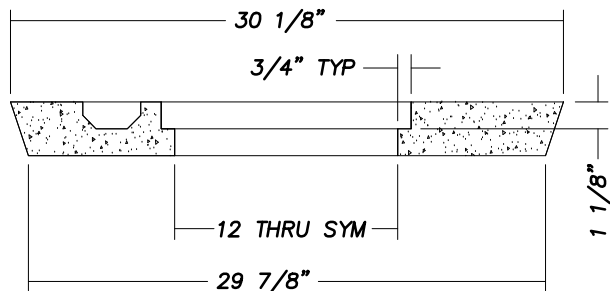
1. TRENCH DETAILS SHALL BE PER OLYMPIA STANDARD DRAWINGS
2. RECLAIMED WATER PIPE SHALL BE PURPLE COLOR AND CODED INTEGRALLY STAMPED IN BLACK "CAUTION: RECLAIMED WATER - DO NOT DRINK".
3. RECLAIMED WATER WARNING TAPE SHALL BE PLASTIC WITH NON BIO DEGRADABLE METAL CORE OR BACKING THAT CAN BE DETECTED WITH A STANDARD METAL DETECTOR. TAPE SHALL BE PURPLE WITH BLACK LETTERING STATING "CAUTION: RECLAIMED WATER - DO NOT DRINK" AND SHALL BE PLACED 12" TO 18" BELOW FINISHED SURFACE.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
	2/28/08	RECLAIMED WATER TRENCH DETAIL	10-14
CITY ENGINEER			

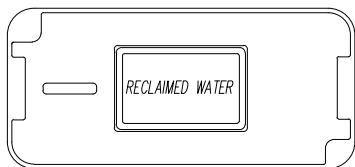
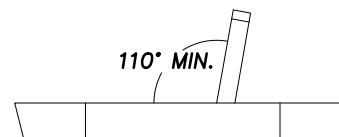


SECTION B - B

EST. WEIGHT  
 FLIPPER DOOR: 10 LBS  
 COVER: 60 LBS  
 TOTAL: 70 LBS  
 "RECLAIMED WATER"  
 PURPLE COMPOSITE

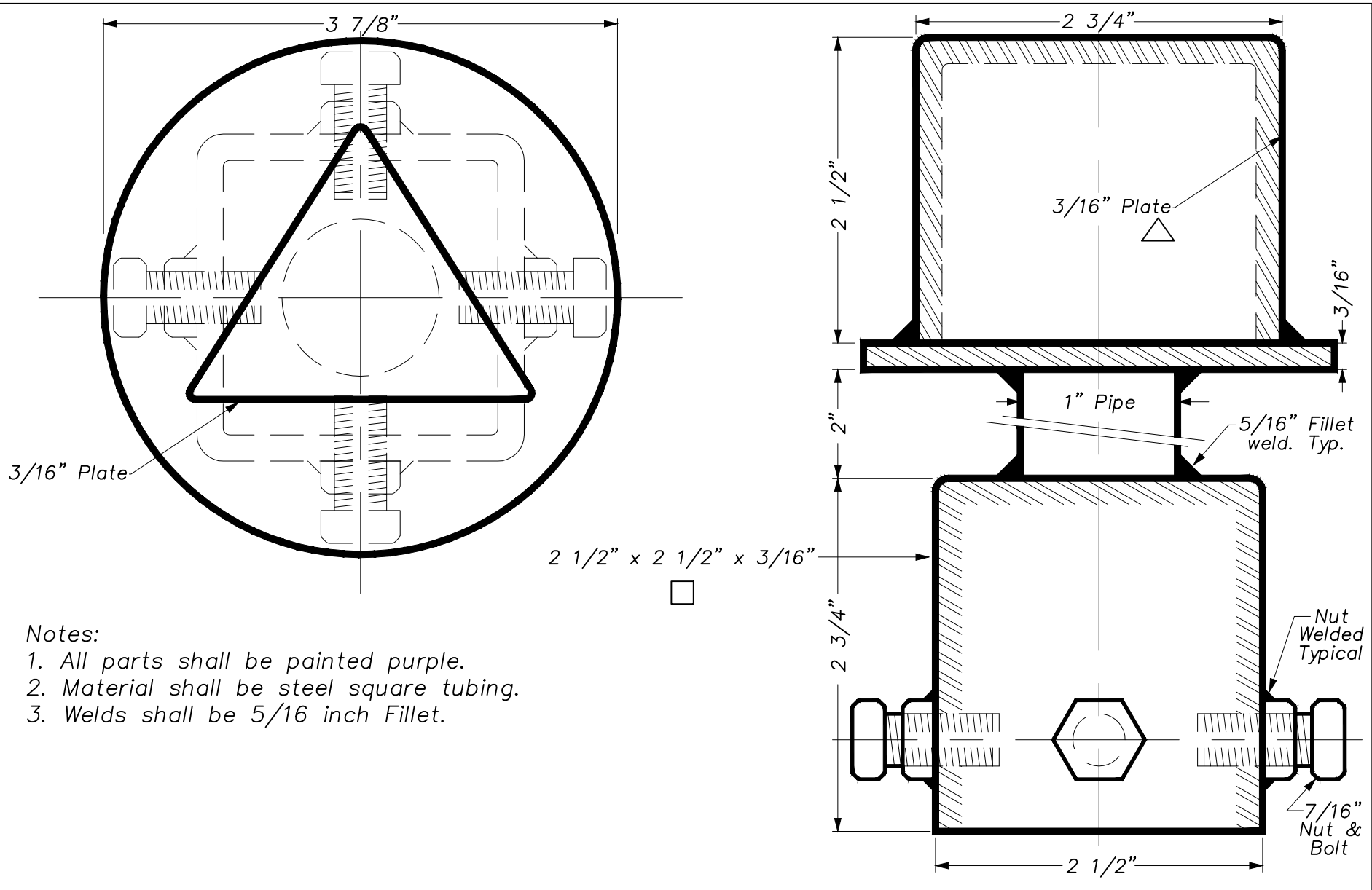


SECTION A - A



- NOTE:
1. SERVICE CONNECTIONS SHALL BE PER CITY OF OLYMPIA STANDARDS.
  2. METER BOX SHALL BE PAINTED WITH PURPLE-PANTONE #512 FOR ALL RECLAIMED WATER SERVICES.
  3. METERS AND VALVES SHALL BE LABELED OR TAGGED TO INDICATE RECLAIMED WATER.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. PLAN NO.
	1/06/09	RECLAIMED WATER	10-15
CITY ENGINEER		1 1/2" & 2" METER BOX COVER	



APPROVED BY	REVISION DATE	CITY OF OLYMPIA RELAINED WATER VALVE NUT EXTENSION	STD. PLAN NO.
CITY ENGINEER	2/26/2013		10-16