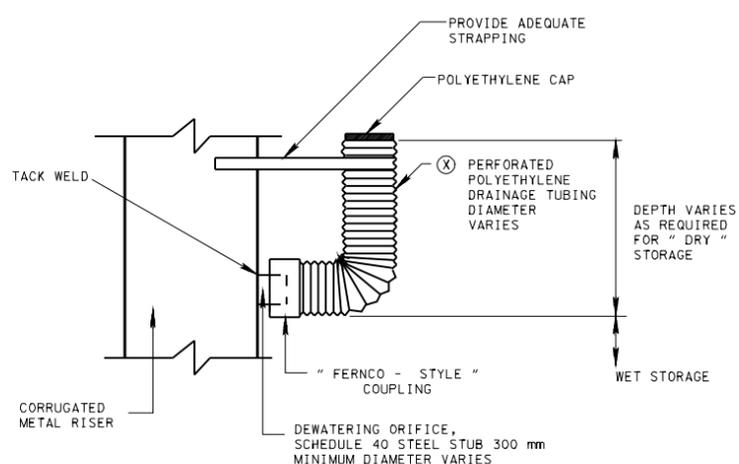


CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE DESIGN TABLE						
RISER DIA., mm	CYLINDER		HEIGHT, mm	MINIMUM SUPPORT BAR	MINIMUM TOP	
	DIAMETER, mm	THICKNESS, mm			THICKNESS	STIFFENER
300	450	1.6	150	NO. 20 REBAR OR 38 X 38 X 4.8 ANGLE	1.6 mm (F&C)	-
375	525	1.6	180	NO. 20 REBAR OR 38 X 38 X 4.8 ANGLE	1.6 mm (F&C)	-
450	675	1.6	200	NO. 20 REBAR OR 38 X 38 X 4.8 ANGLE	1.6 mm (F&C)	-
525	750	1.6	280	NO. 20 REBAR OR 38 X 38 X 4.8 ANGLE	1.6 mm (C) 2.0 mm (F)	-
600	900	1.6	330	NO. 20 REBAR OR 38 X 38 X 4.8 ANGLE	1.6 mm (C) 2.0 mm (F)	-
675	1050	1.6	380	NO. 20 REBAR OR 38 X 38 X 4.8 ANGLE	1.6 mm (C) 2.0 mm (F)	-
900	1350	1.6	430	NO.25 REBAR	2.0 mm (C) 2.8 mm (F)	-
1050	1500	1.6	480	NO.25 REBAR	2.0 mm (C) 2.8 mm (F)	-
1200	1800	1.6	530	32 mm PIPE OR 32 X 32 X 6.4 ANGLE	2.0 mm(C) 3.5 mm(F)	-
1350	1950	1.6	635	32 mm PIPE OR 32 X 32 X 6.4 ANGLE	2.0 mm(C) 3.5 mm(F)	-
1500	2250	2.0	735	38 mm PIPE OR 38 X 38 X 6.4 ANGLE	2.8 mm (C) 4.3 mm (F)	-
1650	2400	2.0	840	51 mm PIPE OR 51 X 51 X 4.8 ANGLE	2.8 mm(C) 4.3 mm(F) W/STIFFENER	51 X 51 X 6.4 ANGLE
1800	2550	2.0	915	51 mm PIPE OR 51 X 51 X 4.8 ANGLE	2.8 mm(C) 4.3 mm(F) W/STIFFENER	64 X 64 X 6.4 ANGLE
1950	2850	2.0	990	64 mm PIPE OR 51 X 51 X 6.4 ANGLE	2.8 mm(C) 4.3 mm(F) W/STIFFENER	64 X 64 X 6.4 ANGLE
2100	3000	2.8	1070	64 mm PIPE OR 64 X 64 X 6.4 ANGLE	2.8 mm(C) 4.3 mm(F) W/STIFFENER	64 X 64 X 7.9 ANGLE

NOTE : THE CRITERION FOR SIZING THE CYLINDER IS THAT THE AREA BETWEEN THE INSIDE OF THE CYLINDER AND THE OUTSIDE OF THE RISER IS EQUAL TO OR GREATER THAN THE AREA INSIDE THE RISER. THEREFORE, THE ABOVE TABLE IS INVALID FOR USE WITH CONCRETE PIPE RISERS.

NOTE : CORRUGATION FOR 300 mm THRU 900 mm PIPE MEASURES 68 X 13; FOR 1050 mm THRU 2100 mm THE CORRUGATION MEASURES 125 X 25 OR 200 X 25

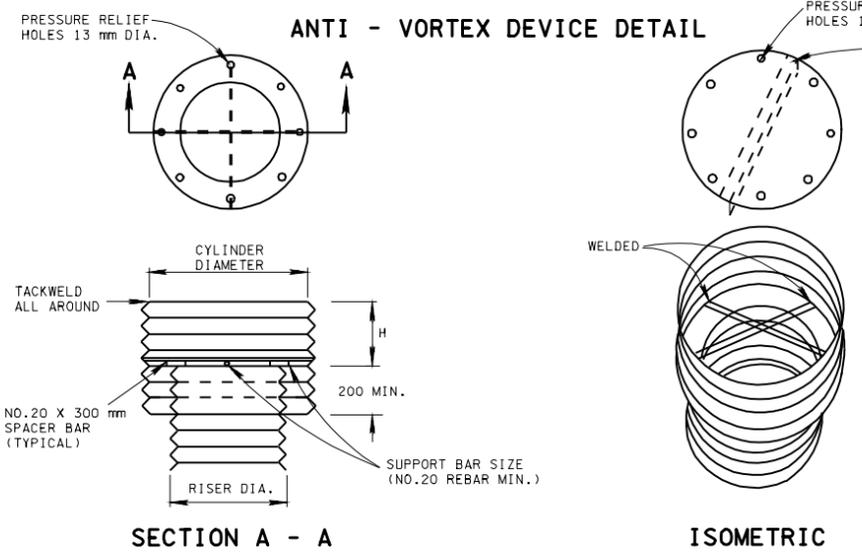
NOTE : C = CORRUGATED; F = FLAT.



NOTE : WITH CONCRETE RISER, USE PVC SCHEDULE 40 STUB FOR DEWATERING ORIFICE

⊗ DRAINAGE TUBING SHALL COMPLY WITH ASTM F667 AND AASHTO M294

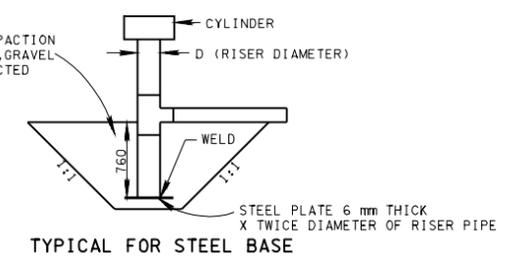
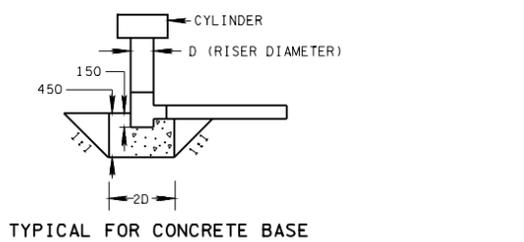
**DEWATERING SYSTEM DETAIL FOR SEDIMENT BASINS**



TOP STIFFENER (IF REQUIRED) IS --- X --- X ANGLE WELDED TO TOP AND ORIENTED PERPENDICULAR TO CORRUGATIONS. TOP IS --- mm THICK CORRUGATED METAL OR 3.2 mm THICK STEEL PLATE. PRESSURE RELIEF HOLES MAY BE OMITTED, IF ENDS OF CORRUGATIONS ARE LEFT FULLY OPEN WHEN THE TOP IS ATTACHED.

CYLINDER IS --- mm THICK CORRUGATED METAL PIPE OR FABRICATED FROM 3.2 mm THICK STEEL PLATE.

- NOTE :
- ① THE CYLINDER MUST BE FIRMLY FASTENED TO THE TOP OF THE RISER.
  - ② SUPPORT BARS ARE WELDED TO THE TOP OF THE RISER OR ATTACHED BY STRAPS BOLTED TO TOP RISER.



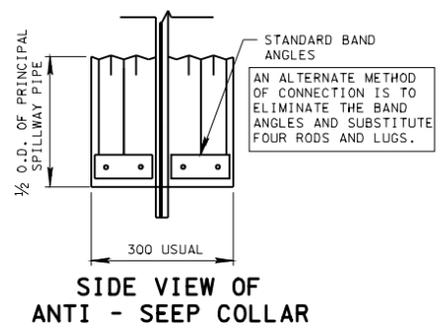
**TYPICAL ANTI-FLOTATION BLOCK DETAILS FOR RISERS 3.0 m OR LESS IN HEIGHT**

NOTE : THE BASE OF THE PRINCIPAL SPILLWAY MUST BE FIRMLY ANCHORED TO PREVENT ITS FLOATING. IF THE RISER OF THE SPILLWAY IS GREATER THAN 3.0 m IN HEIGHT, COMPUTATIONS MUST BE MADE TO DETERMINE THE ANCHORING REQUIREMENTS. A MINIMUM FACTOR OF 1.25 SHALL BE USED (DOWNWARD FORCES = 1.25 X UPWARD FORCES).

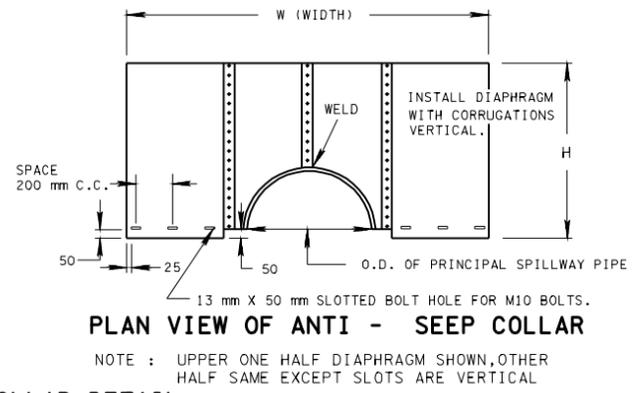
ANTI - SEEP COLLAR DIMENSION TABLE					
DIA (mm)	THICKNESS (mm)	MINIMUM DIAPHRAGM SIZE (mm)	FABRICATION DIM. FOR 1/2 DIAPHRAGM (mm)		
			W (WIDTH)	H (HEIGHT)	
200	1.6	1475 X 1475	1485	775	
250	1.6	1475 X 1475	1485	775	
300	1.6	1525 X 1525	1625	825	
375	1.6	1600 X 1600	1725	865	
450	1.6	1675 X 1675	1760	900	
525	1.6	1755 X 1755	1830	940	
600	2.0	1830 X 1830	1830	980	
750	2.0	1980 X 1980	2095	1055	
900	2.0	2135 X 2135	2235	1130	
1050	2.0	2285 X 2285	2370	1205	
1200	2.0	2440 X 2440	2440	1285	
1350	2.0	2590 X 2590	2570	1360	

**ANTI-SEEP COLLAR DETAIL ASSEMBLY NOTES**

- (A1) UNASSEMBLED DIAPHRAGMS SHALL BE MARKED BY PAINTING OR TAGGING WHEN NECESSARY TO IDENTIFY MATCHING PAIRS TO SECURE A PROPER INSTALLATION.
- (A2) THE LAP BETWEEN THE TWO HALF SECTIONS AND BETWEEN THE PIPE AND COUPLING BAND SHALL BE CALKED WITH BITUMINOUS MASTIC AT TIME OF INSTALLATION. NEOPRENE GASKET 9.5 mm x 180 mm MINIMUM WIDTH MAY BE USED IN LIEU OF MASTIC.
- (A3) ALL WELDS AND ALL HEAT AFFECTED AREAS ON ZINC COATED METAL SHALL BE THOROUGHLY CLEANED AND TREATED IN ACCORDANCE WITH SPECIFICATIONS (STEEL ONLY).
- (A4) EACH DIAPHRAGM SHALL BE FURNISHED WITH TWO RODS AND NUTS AND TWO STANDARD TANK LUGS OR "L" LUGS FOR SECURING DIAPHRAGMS TO PIPE.
- (A5) RODS FOR COLLAR COUPLING BANDS AND DIAPHRAGMS FOR 150 mm THRU 375 mm DIAMETER PIPE SHALL BE 9.5 mm DIAMETER AND FOR PIPE LARGER THAN 375 mm DIAMETER THE RODS SHALL BE 13 mm DIAMETER.



**ANTI - SEEP COLLAR DETAIL**



NOTE : UPPER ONE HALF DIAPHRAGM SHOWN, OTHER HALF SAME EXCEPT SLOTS ARE VERTICAL

**ANTI-SEEP COLLAR GENERAL NOTES**

- (B1) THE ANTI-SEEP COLLAR IS TO BE USED ON THE BARREL OF THE PRINCIPAL SPILLWAY TO REDUCE SEEPAGE LOSS AND PIPING FAILURE.
- (B2) USE IF PIPE IS LARGER THAN 250 mm IN DIAMETER.
- (B3) USE A MINIMUM OF ONE ANTI-SEEP COLLAR, IF THE DAM IS 4.6 m OR LESS IN HEIGHT AND A MINIMUM OF TWO ANTI-SEEP COLLARS, IF THE DAM IS GREATER THAN 4.6 m IN HEIGHT.
- (B4) USE MAXIMUM SPACING BETWEEN COLLARS OF FOURTEEN TIMES THE PROJECTION OF THE COLLAR ABOVE THE PIPE, FROM THE DETAILS - THE COLLAR SPACING WOULD BE ONE - HALF THE DIAMETER OF THE PRINCIPAL SPILLWAY PIPE TIMES FOURTEEN.
- (B5) COLLARS SHOULD NOT BE CLOSER THAN 600 mm TO A PIPE JOINT.
- (B6) PRECAUTIONS SHOULD BE TAKEN TO ENSURE 95 % COMPACTION IS ACHIEVED AROUND THE COLLARS.

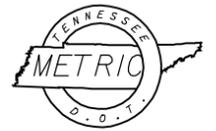
**SEDIMENT BASIN GENERAL NOTES**

- (S1) THE DRAINAGE AREA FOR A SEDIMENT BASIN SHALL NOT EXCEED 20 ha. BASINS NEEDED FOR DRAINAGE AREAS LARGER THAN 20 ha NEED CASE BY CASE DESIGN.
- (S2) THE SEDIMENT BASIN VOLUME SHALL BE BASED UPON A SEDIMENT LOADING RATE OF 253 m<sup>3</sup>/ha.
- (S3) THE SEDIMENT SHALL BE REMOVED AND THE SEDIMENT BASIN RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/4 THE DESIGN VOLUME OF THE BASIN.
- (S4) THE RISER CROSS-SECTIONAL AREA SHALL BE A DETERMINED BY THE RISER INFLOW CURVES SHOWN IN THE EROSION AND SEDIMENT CONTROL MANUAL.
- (S5) THE BARREL CAPACITY SHALL BE BASED UPON EITHER TWO (2) YEARS WHEN A SPILLWAY IS USED OR TWENTY - FIVE (25) YEARS WHEN A SPILLWAY IS NOT USED. IF THE EMERGENCY SPILLWAY IS USED IT WILL BE DESIGNED FOR A TWENTY-FIVE (25) YEAR FLOOD.
- (S6) SEDIMENT BASINS MAY REMAIN IN PLACE AS PERMANENT BASINS, AS INDICATED IN THE PLANS OR AS DIRECTED BY THE ENGINEER. THE HYDRAULIC CALCULATIONS FOR PERMANENT BASINS SHALL BE APPROVED BY THE TENNESSEE DEPARTMENT OF TRANSPORTATION, STRUCTURES DIVISION, HYDRAULIC AND PERMITS SECTION.
- (S7) SEDIMENT BASIN VOLUME IS MEASURED FROM THE CREST OF THE SPILLWAY TO THE BOTTOM OF THE BASIN.
- (S8) DAMS THAT CAN STORE AT LEAST 37000 m<sup>3</sup> OF RUNOFF OR ARE 6.1 m OR MORE IN HEIGHT MUST MEET REQUIREMENTS ESTABLISHED BY THE TENNESSEE SAFE DAM ACT.
- (S9) BAFFLES SHALL BE 1.2 m x 2.4 m x 19 mm EXTERIOR PLYWOOD, TYPE "PLYFORM" GRADE BB, C AND ES.
- (S10) PAYMENT FOR DETAILS SHOWN ON THIS SHEET SHALL BE PAID FOR UNDER THE PRICE BID FOR ITEM NOS. 209MI1.01 THRU 209MI1.09, SEDIMENT BASIN RISER (\_\_\_) PER EACH.
- (S11) THE PIPE USED IN THE CONSTRUCTION OF THE PRINCIPAL SPILLWAY BARREL WILL BE PAID FOR IN ACCORDANCE WITH STANDARD SPECIFICATIONS, SECTION 607, PIPE CULVERT AND STORM SEWERS.
- (S12) SEE STANDARD DRAWING NOS. ECM-STR-15 AND ECM-STR-17 FOR ADDITIONAL DETAILS AND GENERAL NOTES NOT SHOWN ON THIS DRAWING.

ALL UNITS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION



**SEDIMENT BASINS RISER AND COLLAR APPURTENANCES**