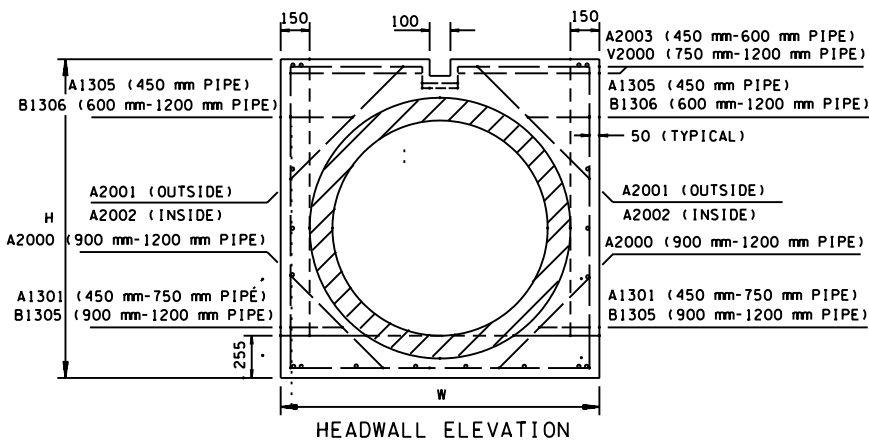
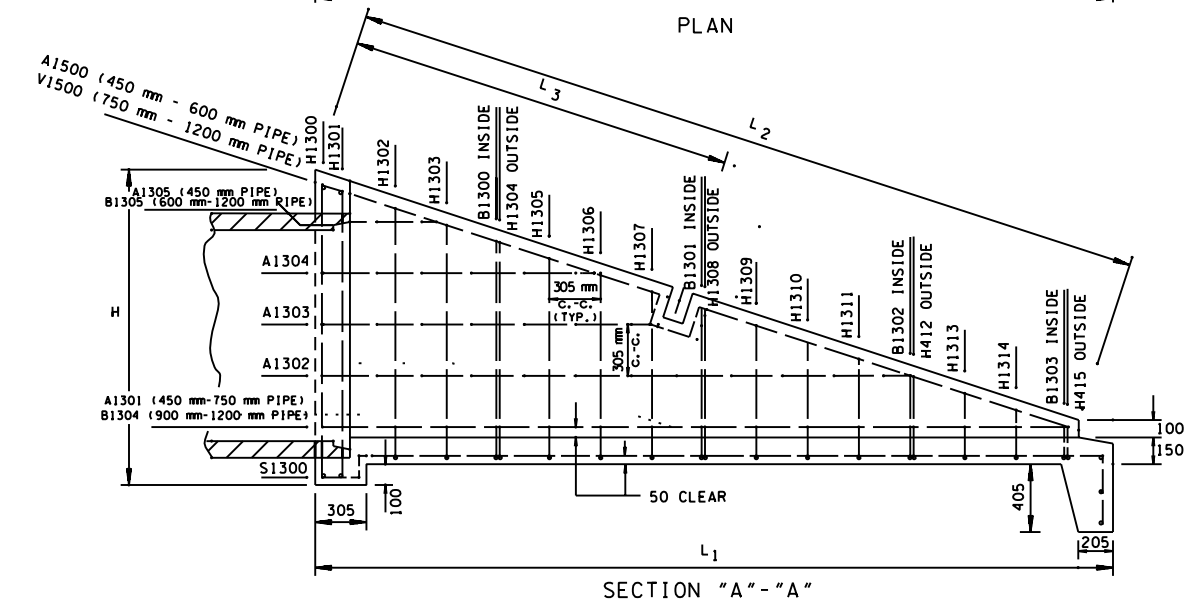
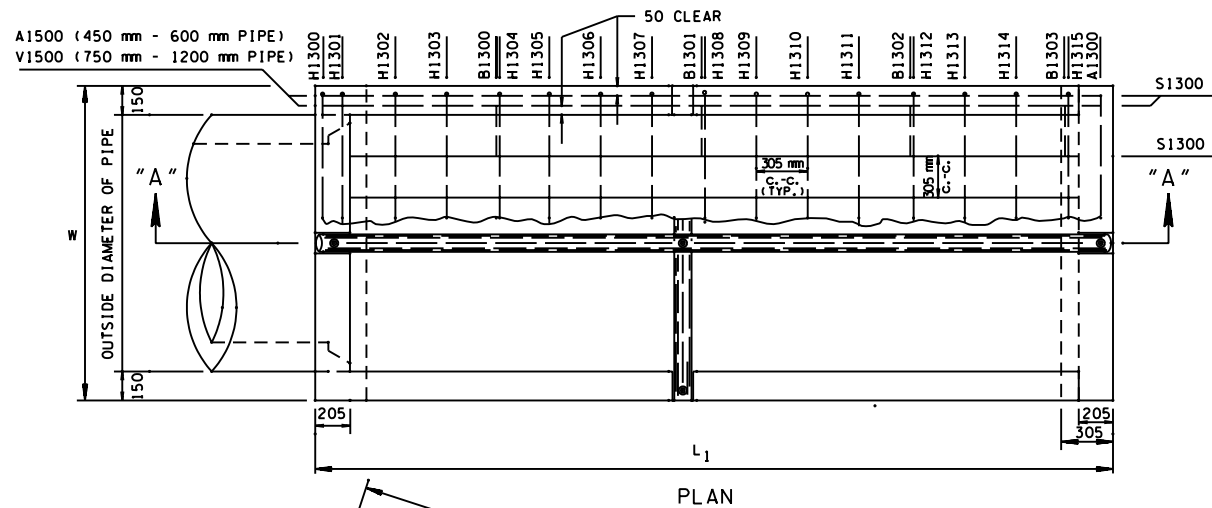


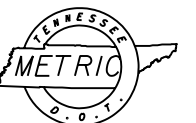
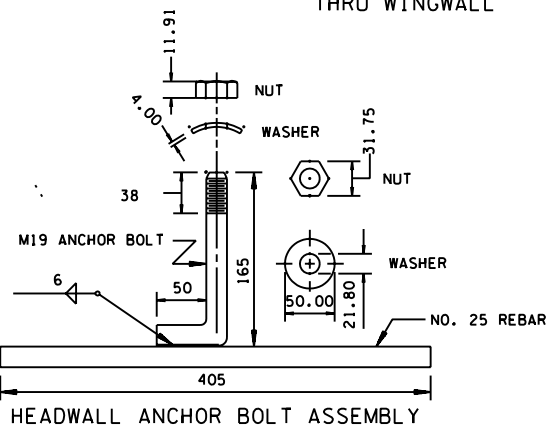
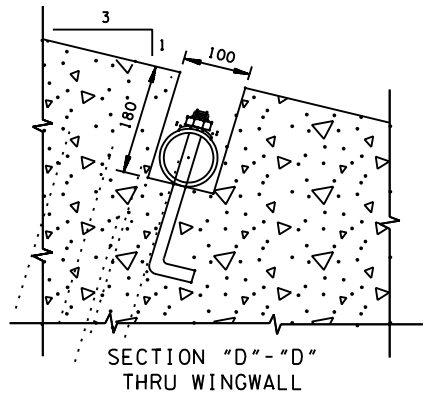
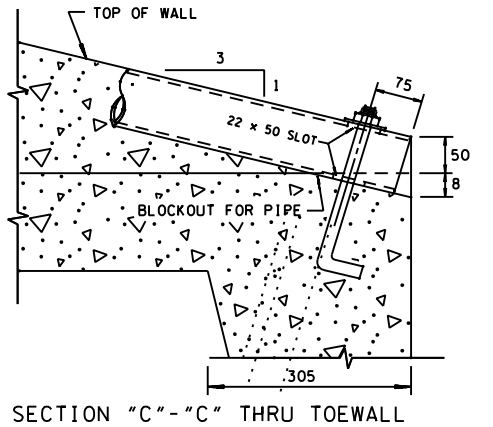
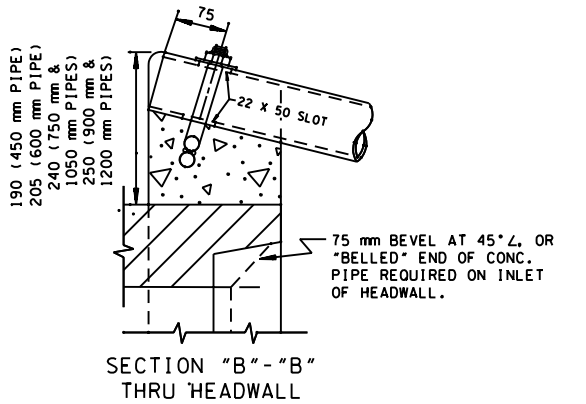
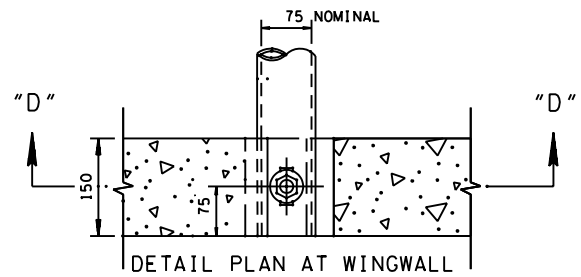
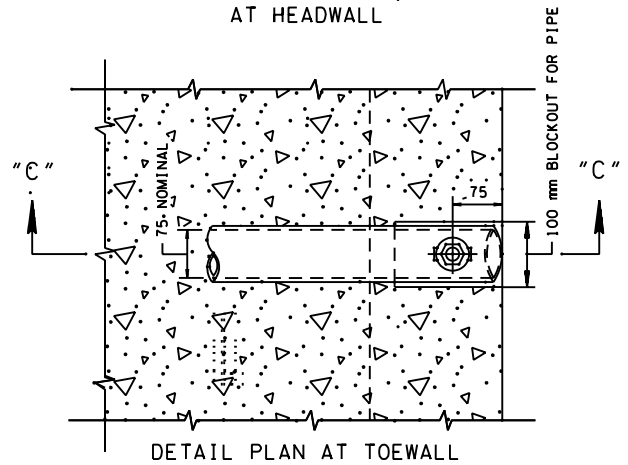
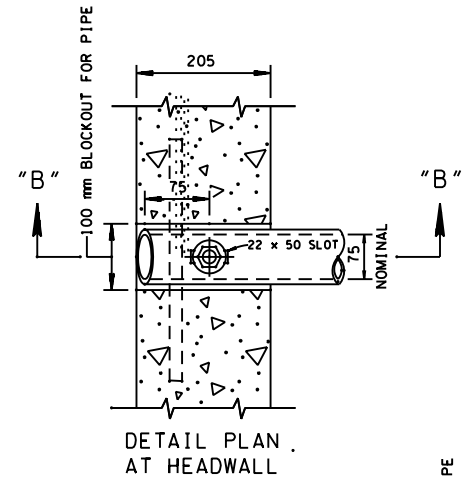
REV. 11-1-95: CHANGED TO METRIC.
REV. 3-30-00: MODIFIED TOE WALL
AND CLASS "A" CONCRETE QUANTITIES.



- NOTES
- ANCHOR BOLT ASSEMBLY FOR TOEWALL AND WINGWALLS SHALL BE AS SHOWN, EXCEPT WITHOUT REBAR AND LONG SHANK OF BOLT TO BE 280 mm INSTEAD OF 165 mm
 - BOLTS SHALL NOT EXTEND MORE THAN 13 mm ABOVE TOP OF NUTS.

PIPE CULV. DIA.	CONCRETE ENDWALL DIMENSIONS IN METERS					STRUCTURAL STEEL PIPE DIMENSIONS IN METERS		ESTIMATED QUANTITIES		
	H	L1	L2	L3	W	LG	WG	CLASS "A" CONCRETE m ³	STEEL BAR REINF. kg	STRUCT. STEEL kg
450	0.965	2.030	1.925	—	0.890	—	—	0.80	60	①
600	1.145	2.565	2.490	—	1.065	—	—	1.16	78	①
750	1.345	3.175	3.130	1.720	1.245	3.325	1.245	1.64	105	52
900	1.525	3.710	3.695	1.950	1.420	3.885	1.420	2.11	140	60
1050	1.675	4.165	4.175	2.250	1.600	4.370	1.600	2.61	165	67
1200	1.855	4.700	4.740	2.310	1.780	4.930	1.780	3.23	200	76

- ① PIPE GRATE IS NOT REQUIRED FOR 450 mm OR 600 mm PIPE CULVERTS.
② SEE DM-PE-38B FOR BILL OF STEEL.



ALL UNITS ARE IN MILLIMETERS
UNLESS NOTED OTHERWISE.

MINOR REVISION -- FHWA
APPROVAL NOT REQUIRED.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CONCRETE ENDWALL
TYPE "U" WITH STEEL
PIPE GRATE
FOR 450 mm THRU 1200 mm
PIPES 3:1 SLOPE

11-1-95 DM-PE-38A

TO BE USED ON CROSSEDRAINS ONLY
AT 90 DEGREE SKEW TO CENTERLINE

2/23/2005 7:21:37 AM
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