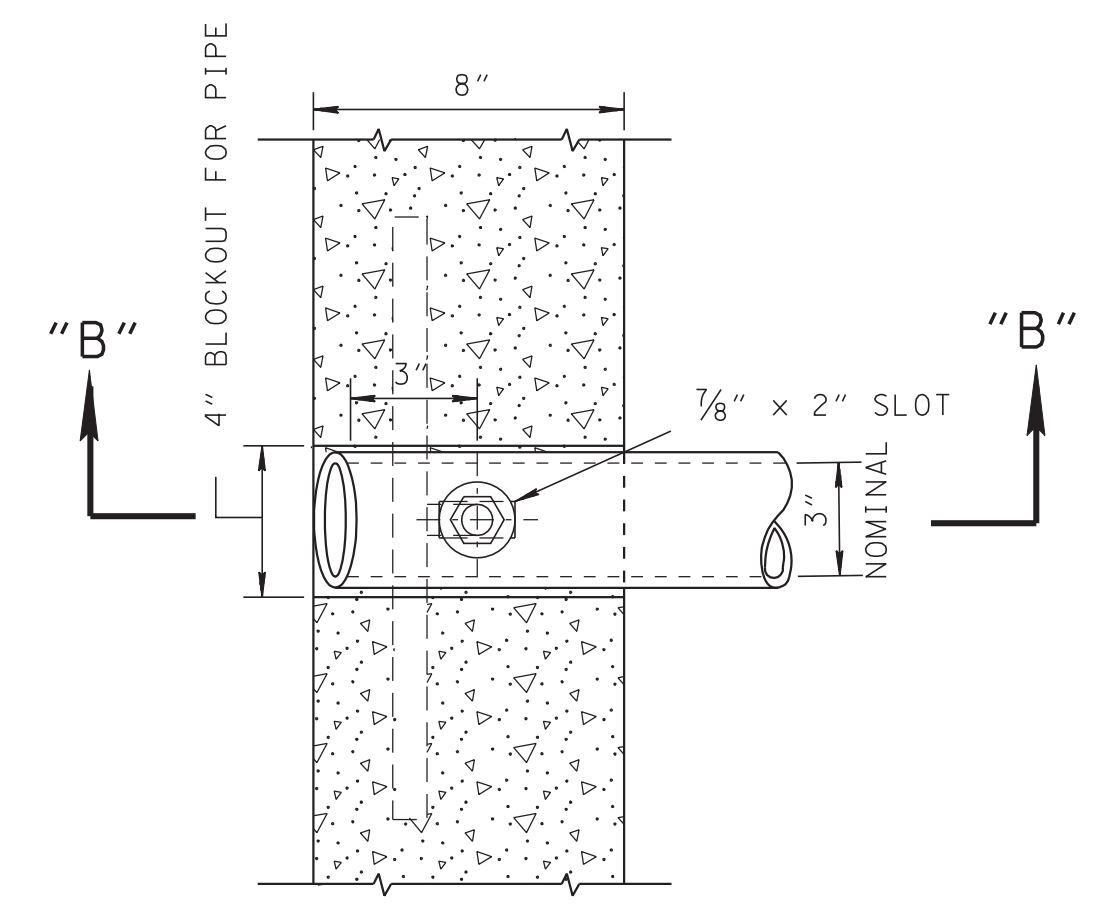


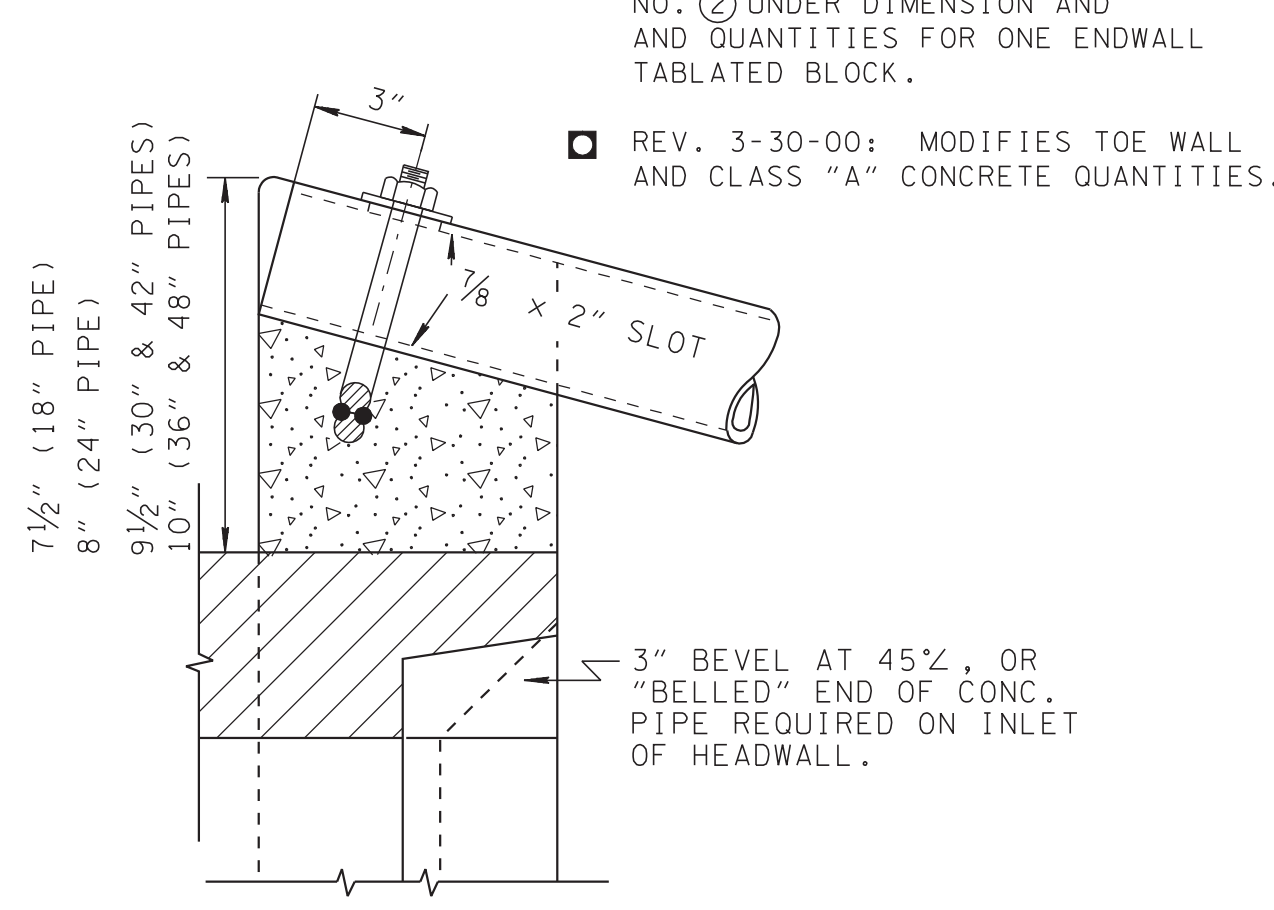
**NOTES**

① ANCHOR BOLT ASSEMBLY FOR TOEWALL AND WINGWALLS SHALL BE AS SHOWN, EXCEPT WITHOUT REBAR AND LONG SHANK OF BOLT TO BE 11" INSTEAD OF 6 1/2".

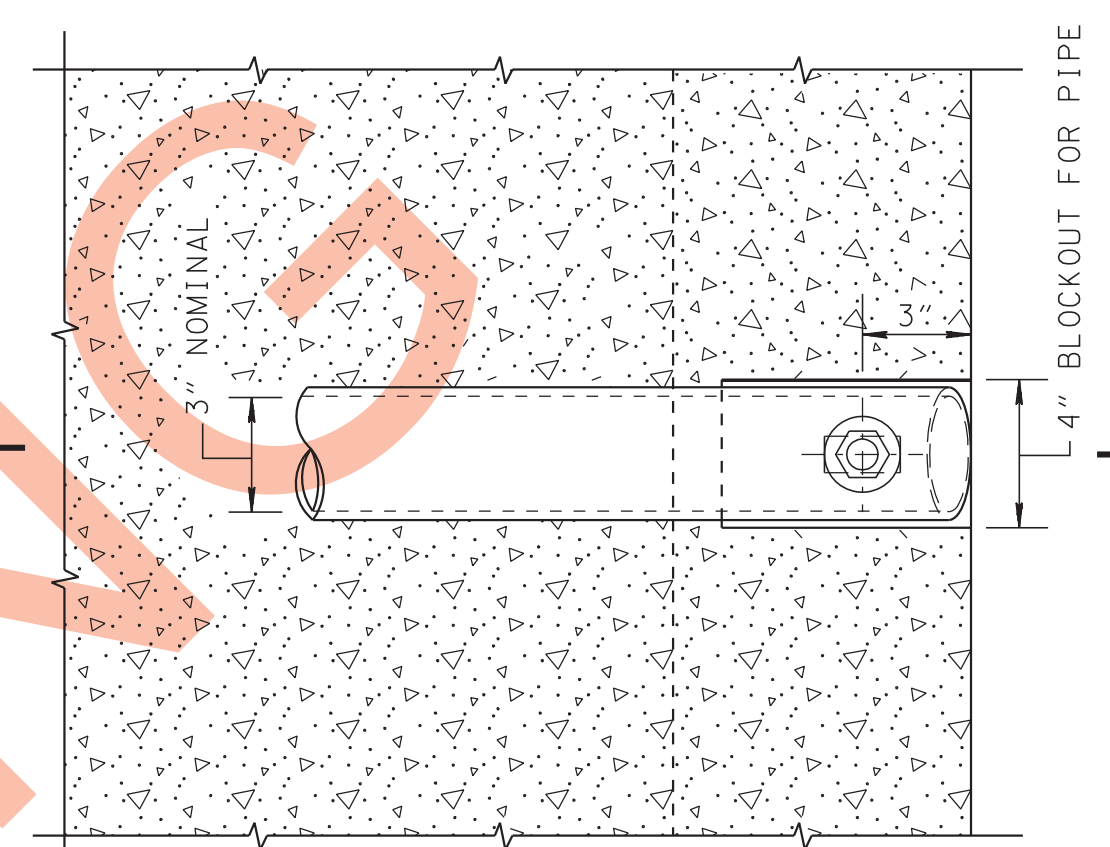
② BOLTS SHALL NOT EXTEND MORE THAN 1/2" ABOVE TOP OF NUTS.



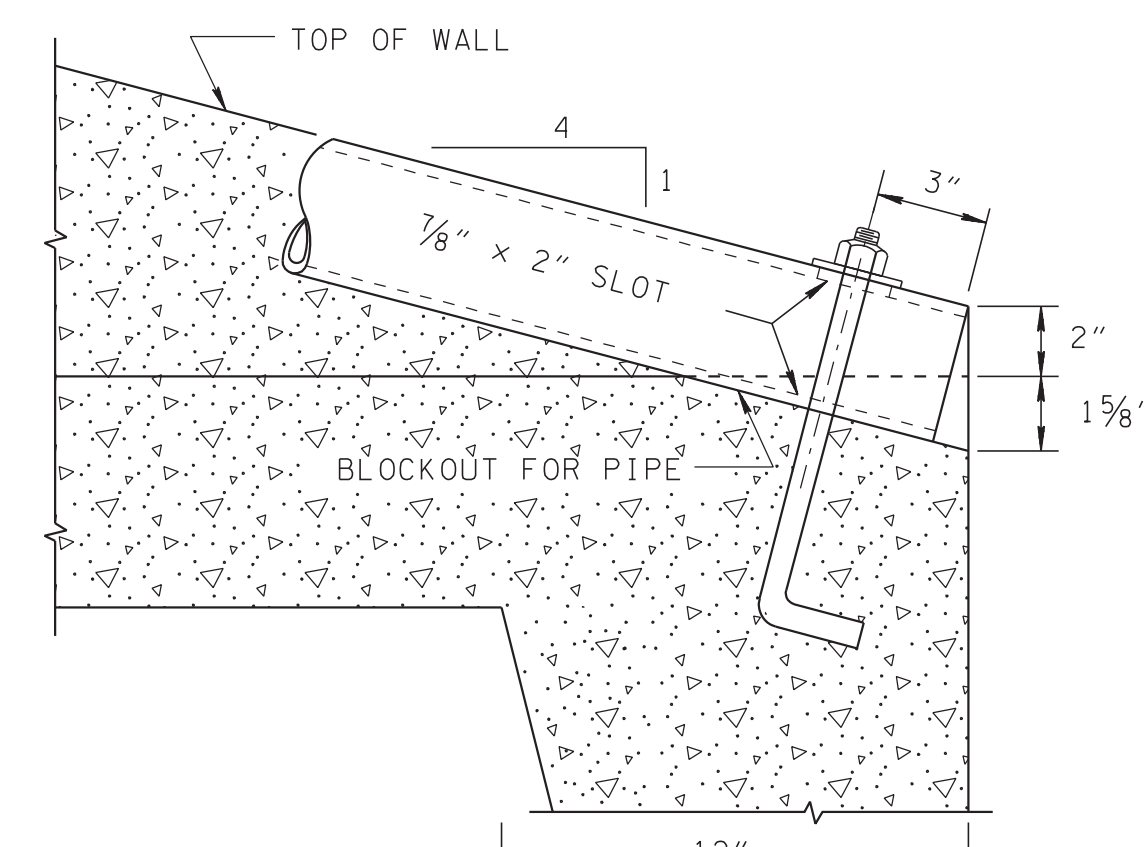
DETAIL PLAN AT HEADWALL



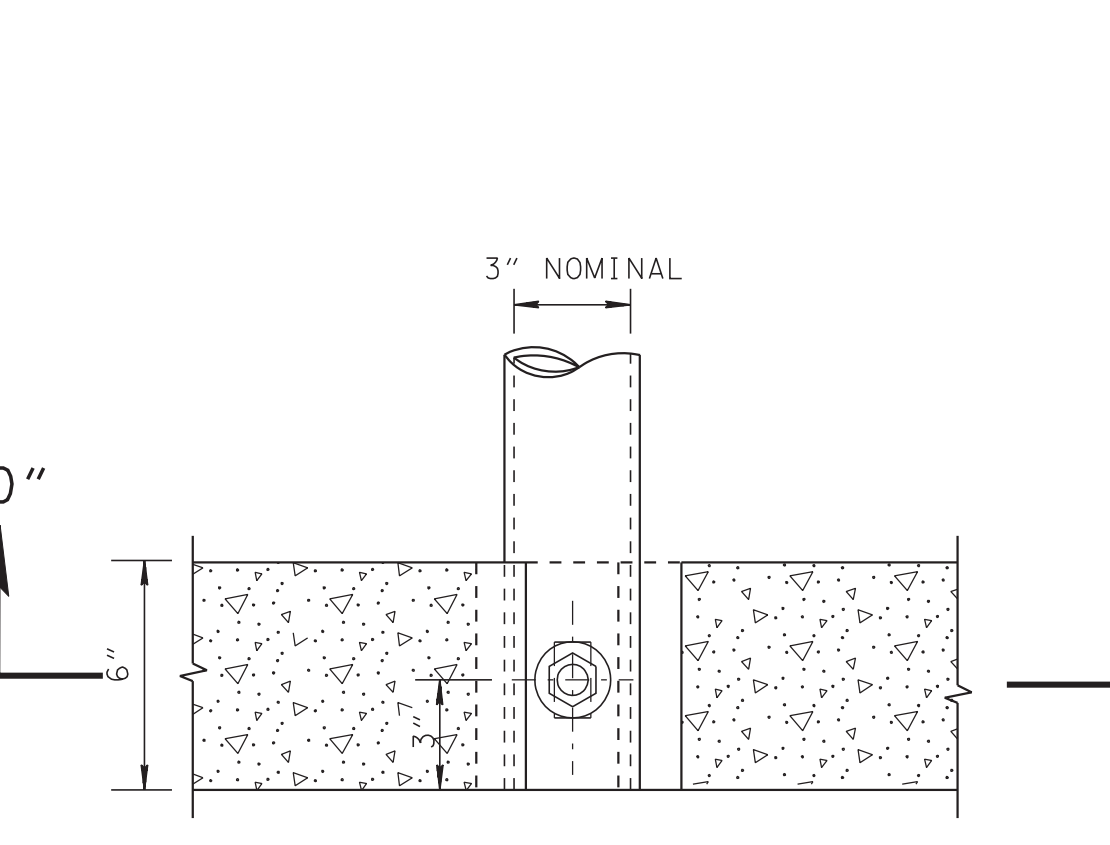
SECTION "B"- "B" THRU HEADWALL



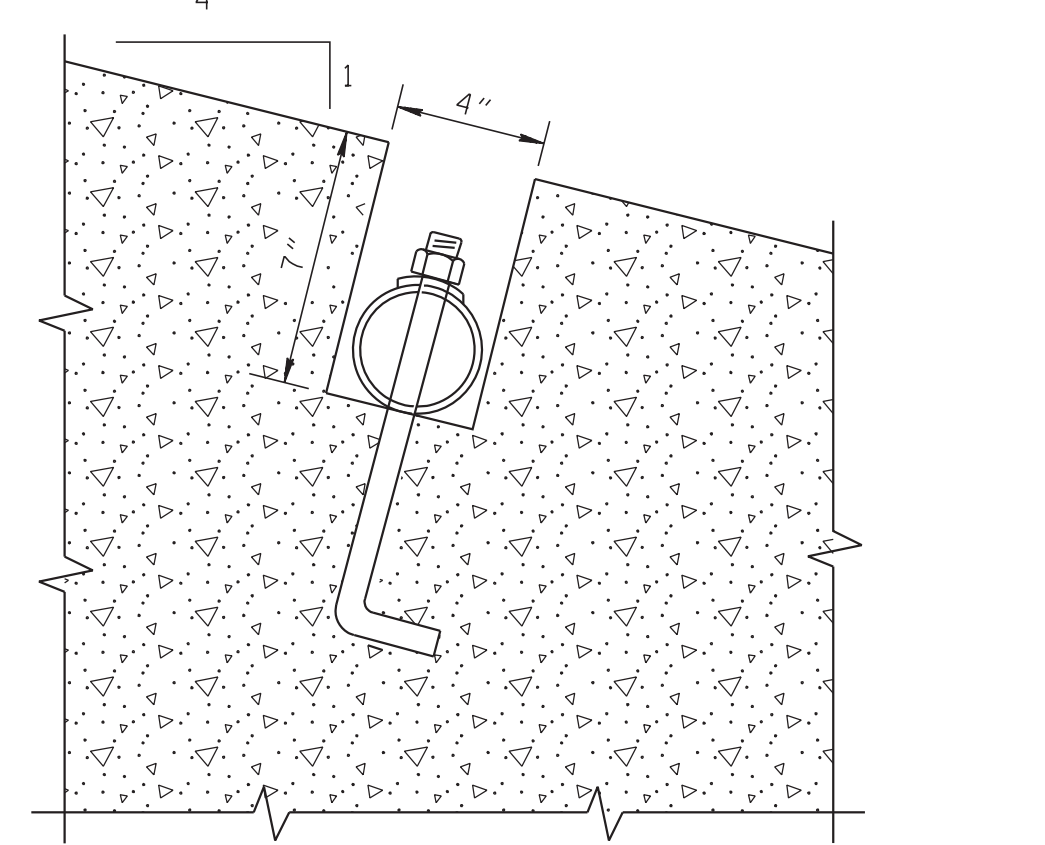
DETAIL PLAN AT TOEWALL



SECTION "C"- "C" THRU TOEWALL



DETAIL PLAN AT WINGWALL



SECTION "D"- "D" THRU WINGWALL

PIPE CULV. DIA.	DIMENSIONS AND QUANTITIES FOR ONE ENDWALL									
	CONCRETE ENDWALL DIMENSIONS					STRUCTURAL STEEL PIPE DIMENSIONS		ESTIMATED QUANTITIES		
	H	L1	L2	L3	W	LG	WG	CLASS "A" CONCRETE CU. YD.	STEEL BAR REINF. LB. ②	STRUCT. STEEL LB.
18"	3'-2"	8'-8"	8'-3"	—	2'-11"	—	—	1.06	147	① —
24"	3'-9"	11'-0"	10'-7 1/8"	—	3'-6"	—	—	1.74	217	① —
30"	4'-5"	13'-8"	13'-4 3/4"	7'-0"	4'-1"	14'-0 1/8"	4'-1"	2.26	286	137
36"	5'-0"	16'-0"	15'-9 3/8"	8'-2 1/2"	4'-8"	16'-5"	4'-8"	3.01	382	160
42"	5'-6"	18'-0"	17'-10 3/8"	9'-2 1/8"	5'-3"	18'-5 3/4"	5'-3"	3.75	446	180
48"	6'-1"	20'-4"	20'-3 1/2"	10'-5 1/4"	5'-10"	20'-10 3/8"	5'-10"	4.70	549	203

① PIPE GRATE IS NOT REQUIRED FOR 18" OR 24" PIPE CULVERTS.  
 ② SEE D-PE-4B(2) FOR BILL OF STEEL.

REV. 11-6-89: ADDED FOOTNOTE NO. ② UNDER DIMENSION AND QUANTITIES FOR ONE ENDWALL TABLATED BLOCK.

REV. 3-30-00: MODIFIES TOE WALL AND CLASS "A" CONCRETE QUANTITIES.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

CONCRETE ENDWALL TYPE "U" WITH STEEL PIPE GRATE FOR 18" THRU 48" PIPES 4:1 SLOPE

D-PE-4B(1)