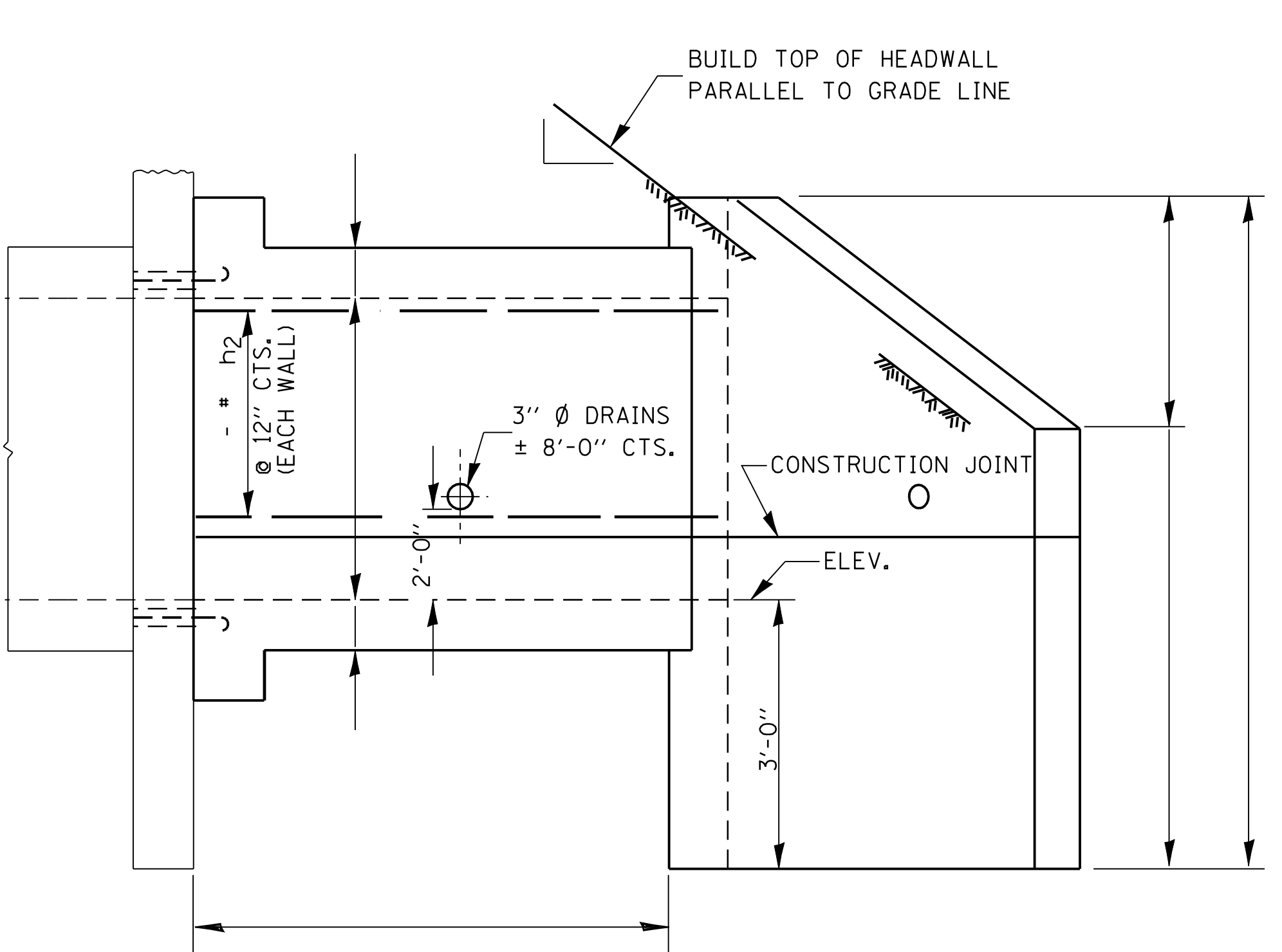
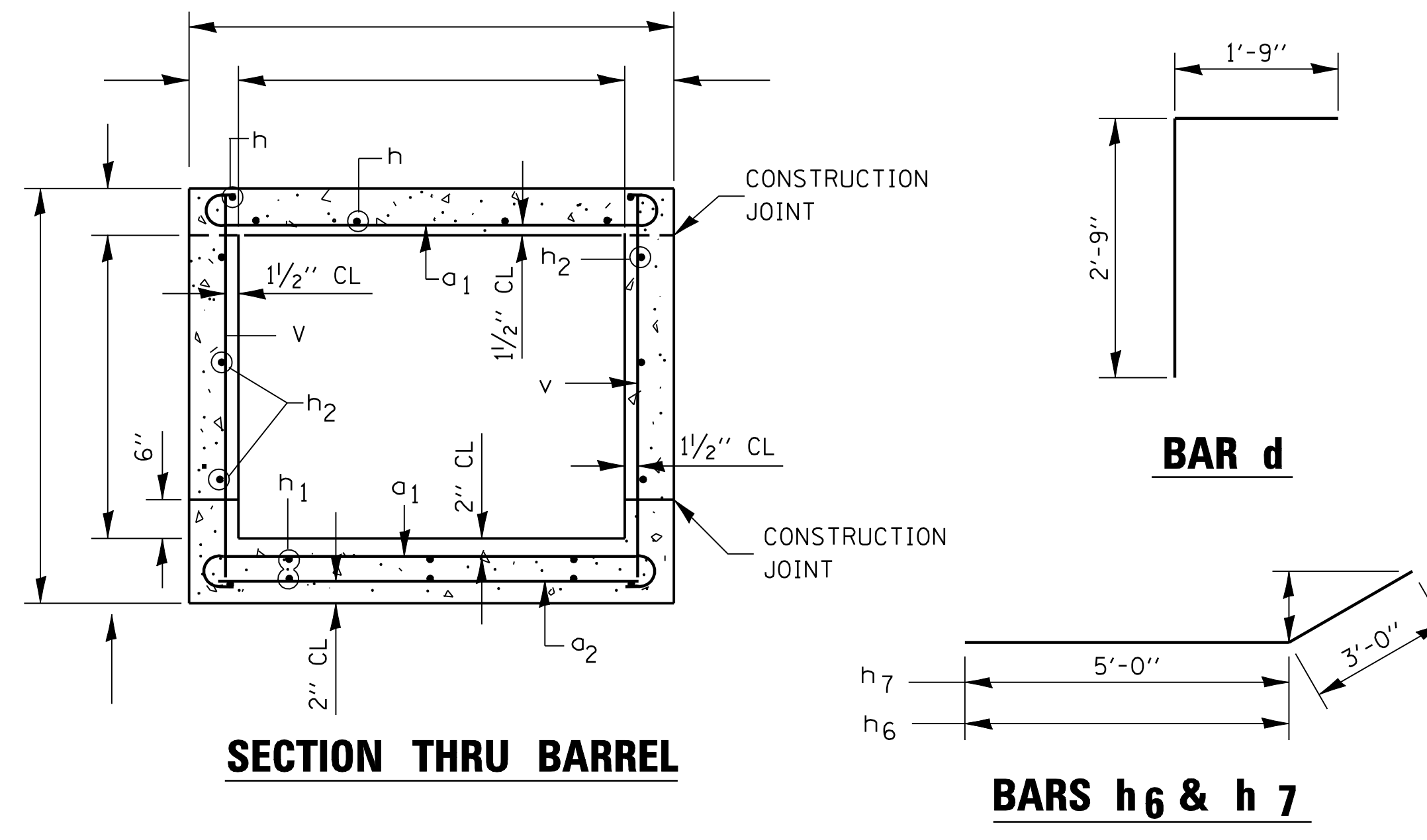


**HALF LONG SECTION**

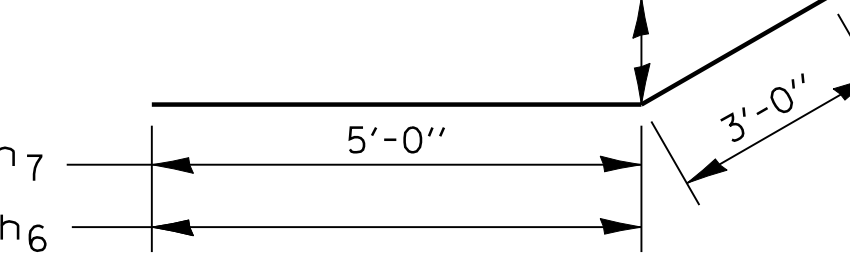


**HALF ELEVATION**

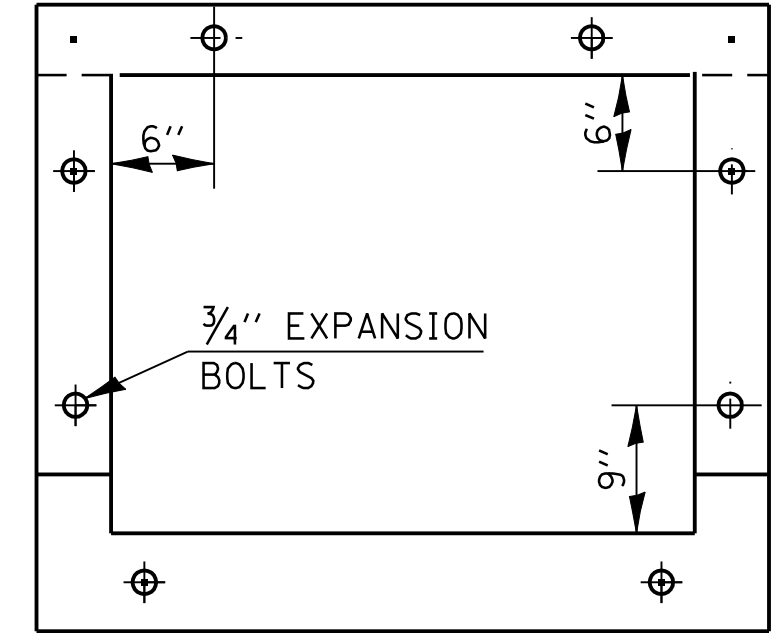


**SECTION THRU BARREL**

**BAR d**



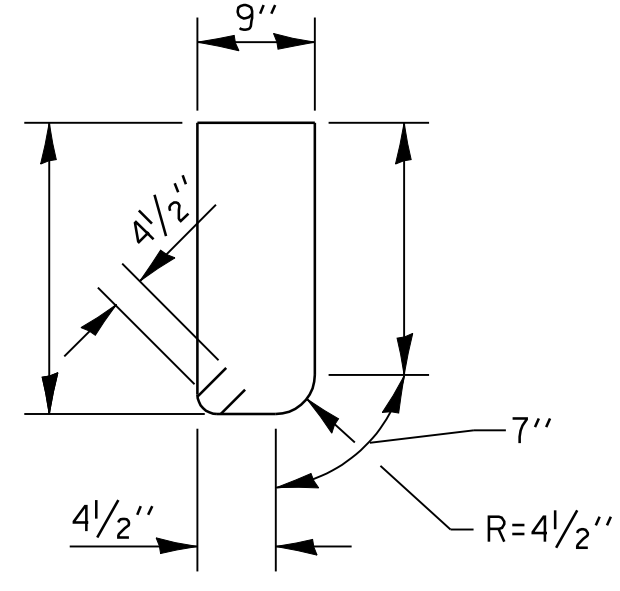
**BARS h6 & h7**



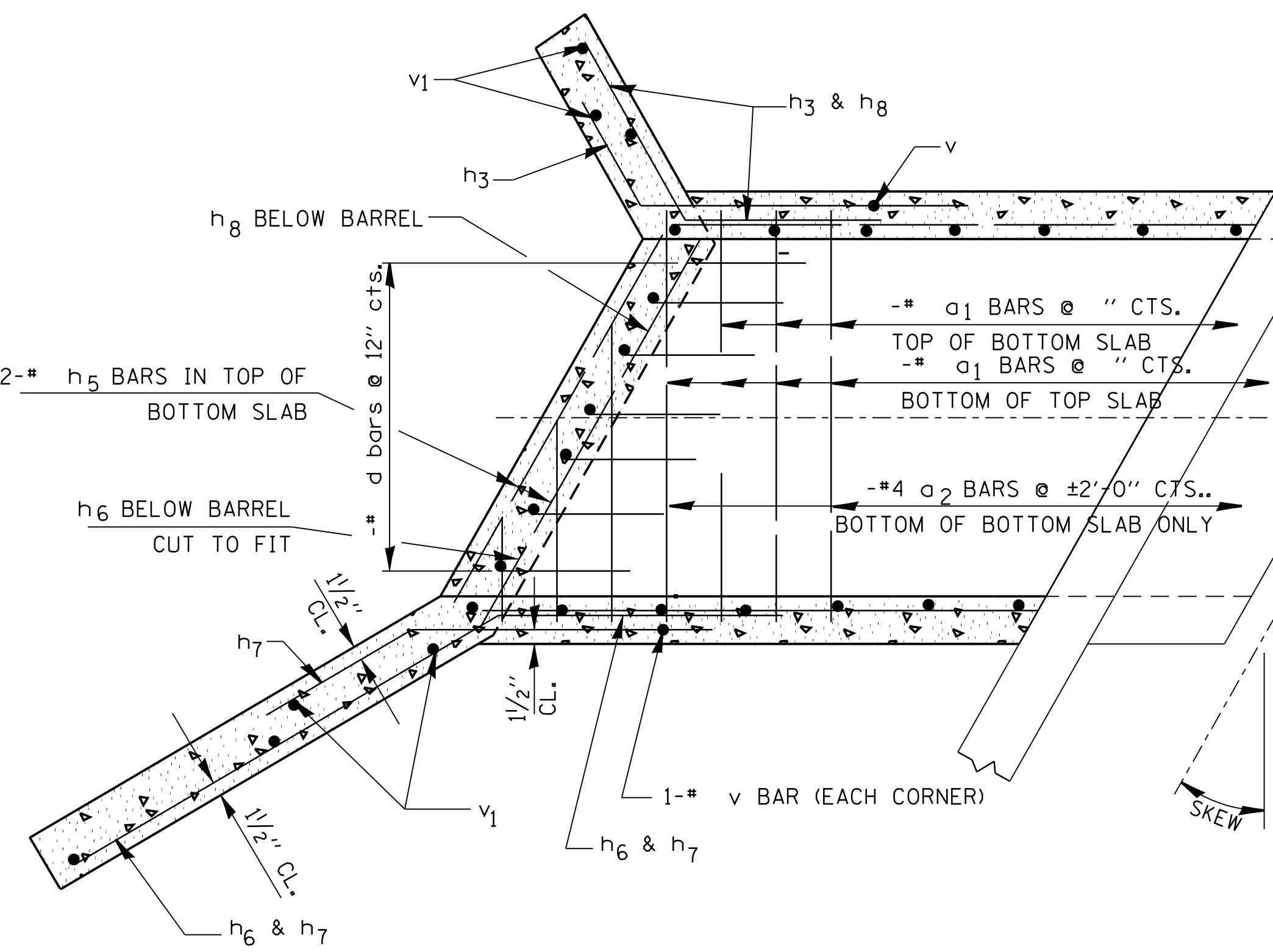
SIDEWALLS @ " CTS.  
TOP & BOTTOM @ " CTS.

**EXPANSION BOLT LOCATION**

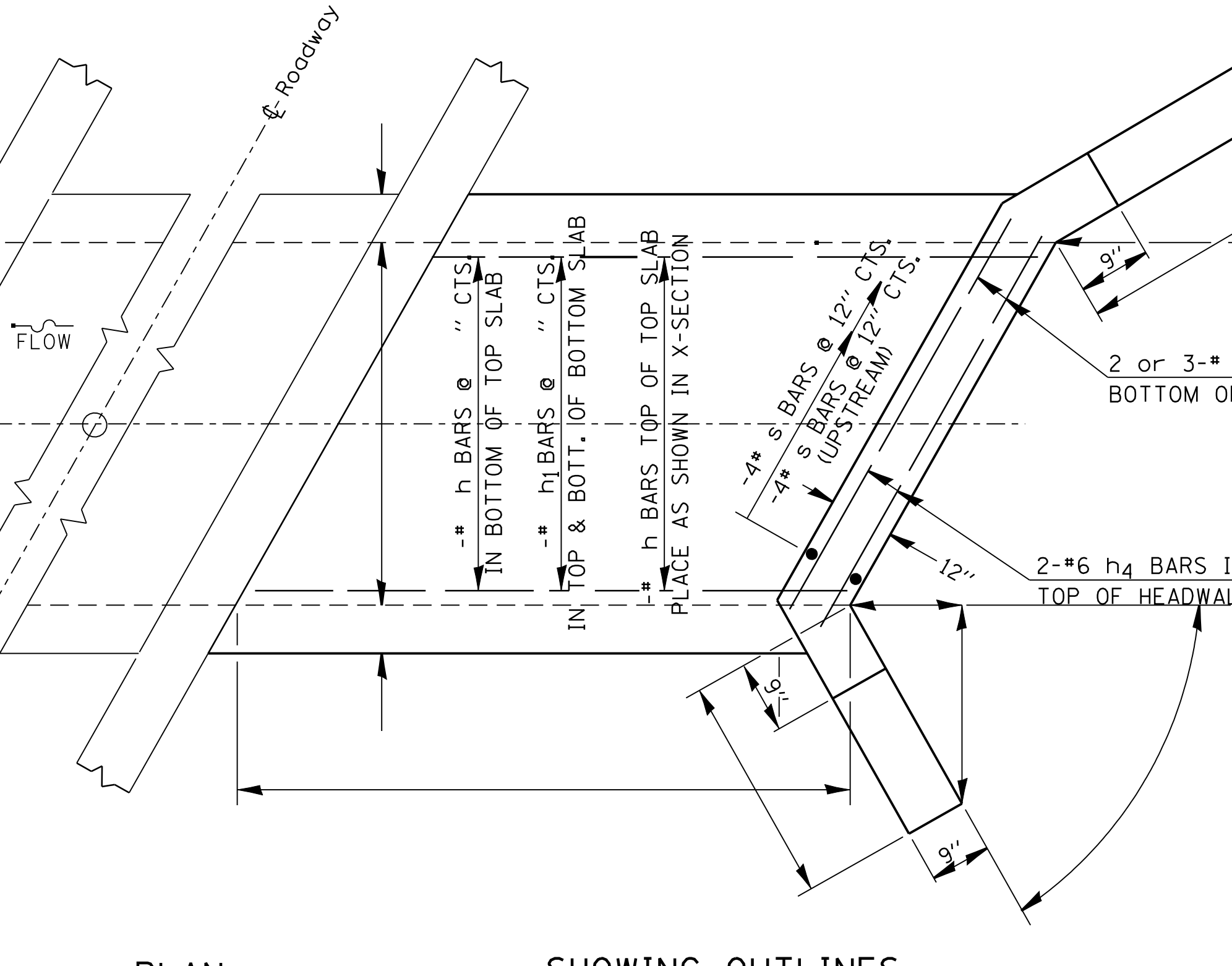
NOTE: EXPANSION BOLTS SHALL CONSIST OF SELF DRILL EXPANSION SHIELDS AND 3/4" DIAMETER HOOKED BOLTS. HOOKED BOLTS SHALL EXTEND A MINIMUM OF 9" INTO NEW CONCRETE. MINIMUM CERTIFIED PROOF LOAD = 4,080 LBS.



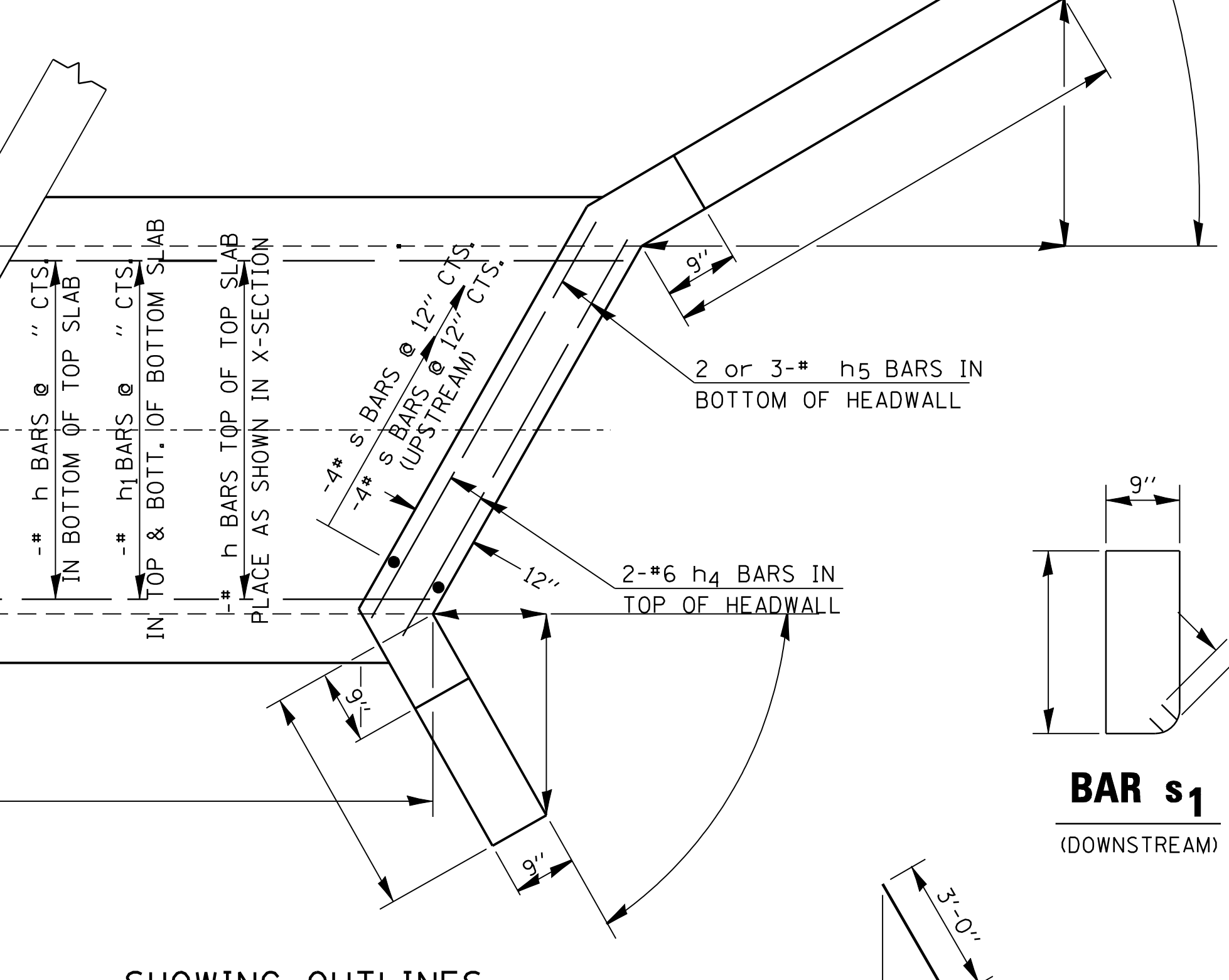
**BAR s**  
(UPSTREAM)



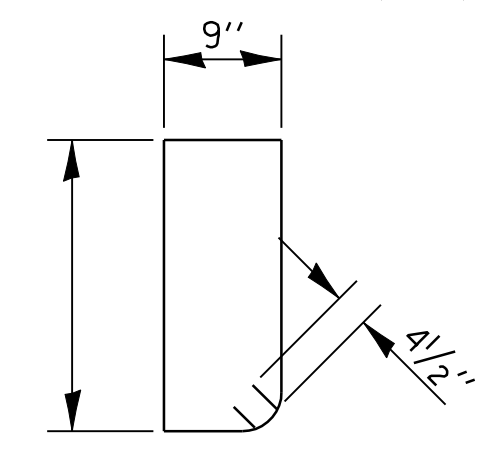
**SHOWING REINFORCEMENT**



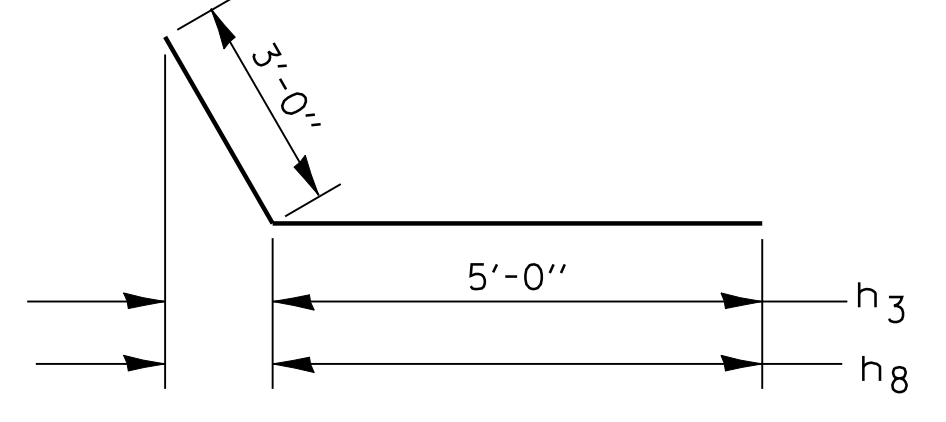
**PLAN**



**SHOWING OUTLINES**



**BAR s1**  
(DOWNSTREAM)



**BARS h3 & h8**

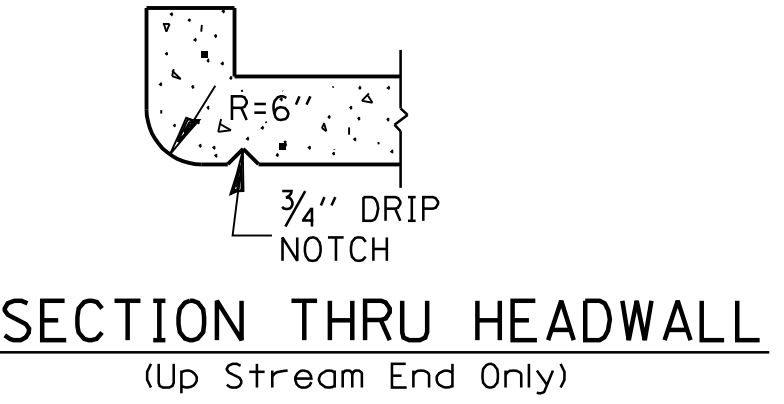
**DESIGN STRESSES**

fy = 60,000 P.S.I.  
fc' = 3,500 P.S.I.

LOADING HS 20-44 & ALT.

**BILL OF MATERIALS**

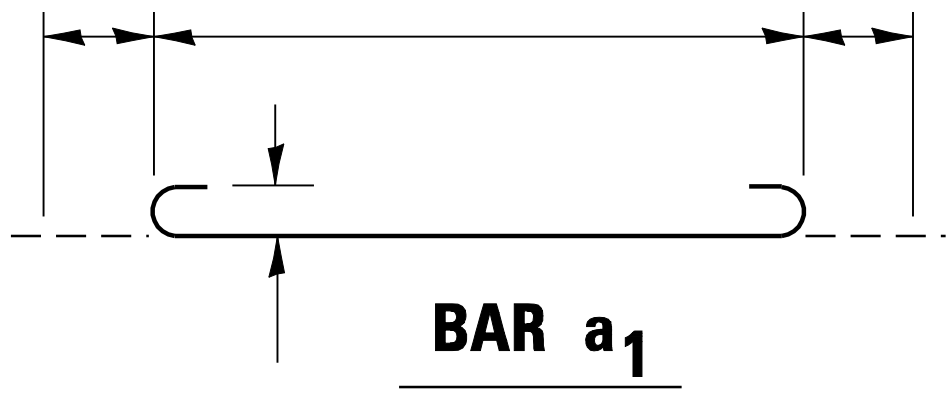
BAR	NUMBER	SIZE	LENGTH
a1			
a2		#4	
d			
h			
h1			
h2			
h3			
h4		#6	
h5			
h6			
h7			
h8			
v			
v1			
s		#4	
s1		#4	
CONC. BOX CULV.		CU. YDS.	
REINFORCEMENT BARS		LBS.	
EXPANSION BOLTS		EACH	



**SECTION THRU HEADWALL**  
(Up Stream End Only)

**GENERAL NOTES**

Class SI Concrete shall be used throughout.  
At least six feet of Barrel shall be poured monolithically with wingwalls.  
Exposed edges shall be beveled 3/4".  
For backfilling and embankments see Standard Specifications.  
Tilt hook of a1 bars, if necessary, to obtain 1/2" minimum clearance at top of hook.  
Reinforcement Bars shall conform to the requirements of AASHTO M-31, M-42 or M-53, Grade 60.



**BAR a1**