

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a	18	#5	6'-11"	
a1	22	#5	6'-4"	
a2	8	#4	5'-10"	
d	5	#4	4'-6"	
h3	11	#6	8'-0"	
h4	10	#6	6'-6"	
h5	4	#6	6'-7"	
h6	9	#7	17'-4"	
h7	10	#7	8'-0"	
h8	10	#6	10'-9"	
h9	16	#5	6'-0"	
h10	15	#5	8'-3"	
h11	12	#4	7'-2"	
h12	24	#5	8'-3"	
s	13	#4	3'-9"	
s1	6	#4	3'-11"	
v	46	#4	6'-9"	
v1	4	#5	5'-0"	
v2	8	#4	9'-9"	
Reinforcement Bars				Lbs. 2060
Expansion Bolts 3/4"				Each 18
Concrete Box Culverts				Cu. Yds. 15.0

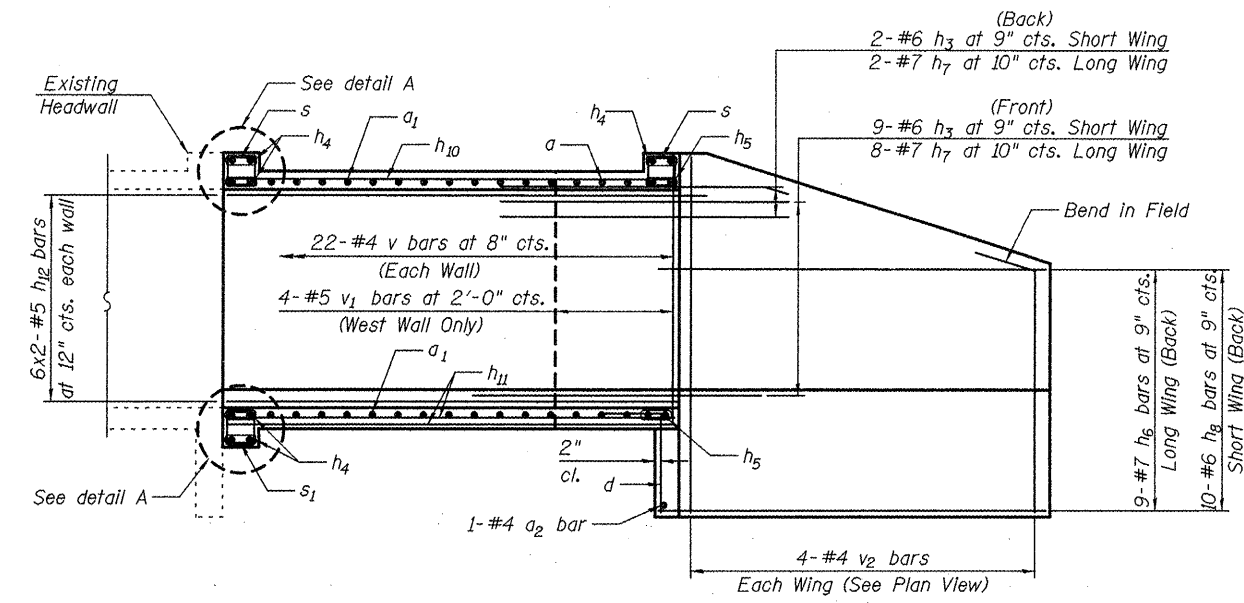
**DESIGN STRESSES**

fy = 60,000 psi  
f'c = 3,500 psi

**LOADING HS 20-44 & ALT.**

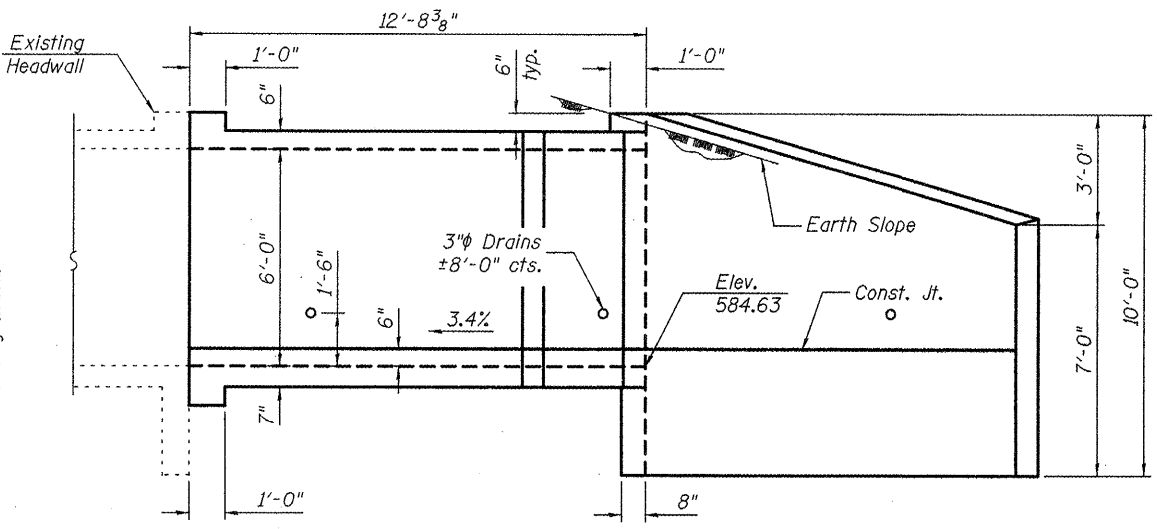
**NOTES**

1. A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.
2. Reinforcement bars shall conform to the requirements of ASTM A 706. See Special Provisions.
3. Bars indicated thus 12 x 4 - #5, etc. indicates 12 lines of bars with 4 lengths per line.
4. Work this Sheet with Sheet 41.



**HALF LONGITUDINAL SECTION**

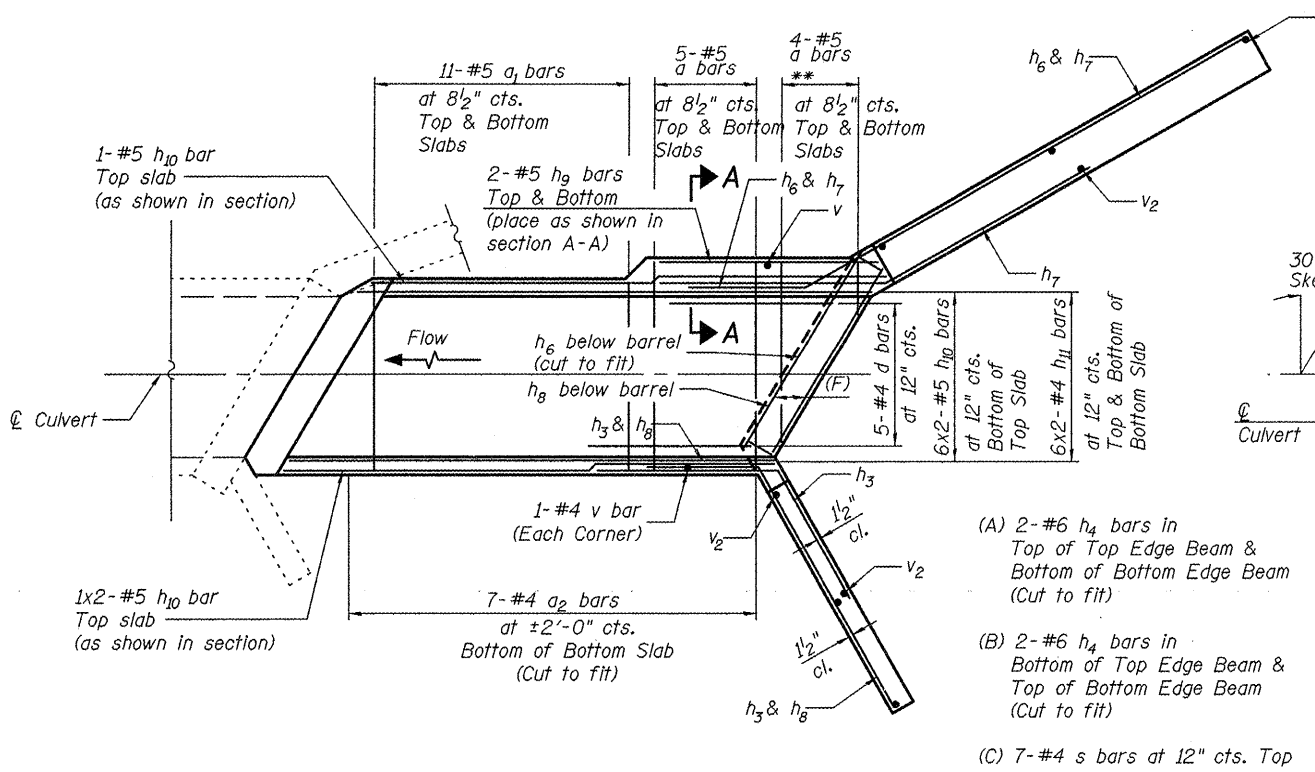
Showing reinforcement



**HALF ELEVATION\***

Showing outlines

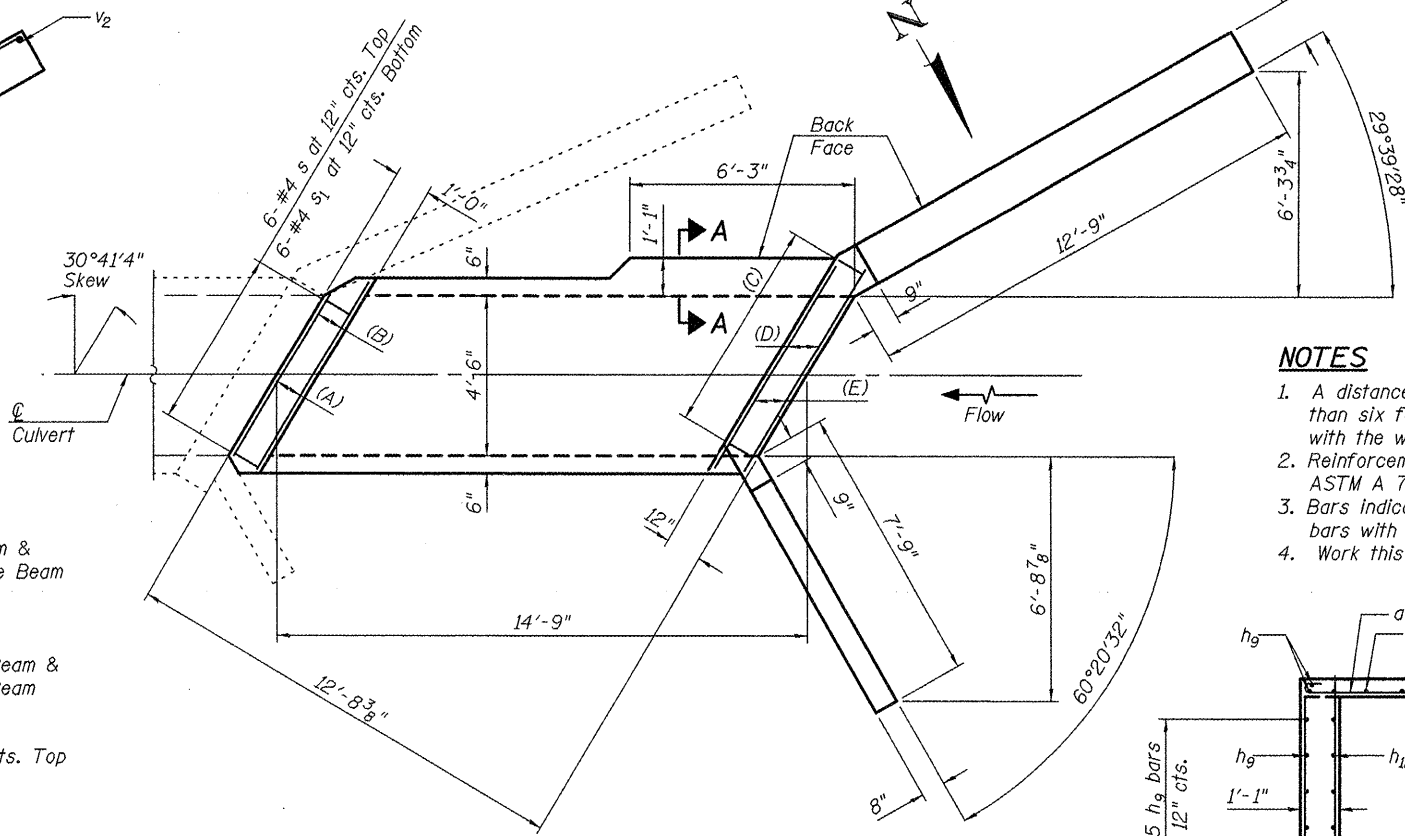
\* Note: Dimensions at Rt. L's to C Roadway  
\*\* a bars in skew portion of the slab shall be ordered full length & cut to fit. Balance of bar to be used in opposite end of slab.



**SHOWING REINFORCEMENT**

**MIN. LAPS**

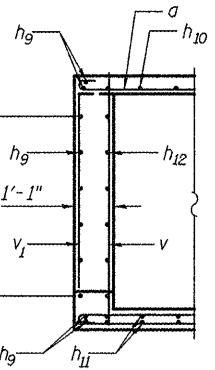
BAR SIZE	BOX EXT.
#4	1'-4"
#5	1'-8"



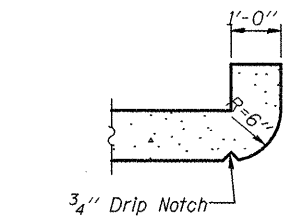
**SHOWING OUTLINES**

**PLAN**

- (A) 2-#6 h4 bars in Top of Top Edge Beam & Bottom of Bottom Edge Beam (Cut to fit)
- (B) 2-#6 h4 bars in Bottom of Top Edge Beam & Top of Bottom Edge Beam (Cut to fit)
- (C) 7-#4 s bars at 12" cts. Top
- (D) 2-#6 h4 bars in Top of Headwall
- (E) 2-#6 h5 bars in Bottom of Headwall
- (F) 2-#6 h6 bars in Top of Bottom Slab



**SECTION A-A**



**SECTION THRU HEADWALL**

(Up Stream End Only)

**EFK•Moen, LLC**  
Civil Engineering Design