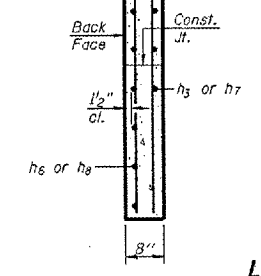
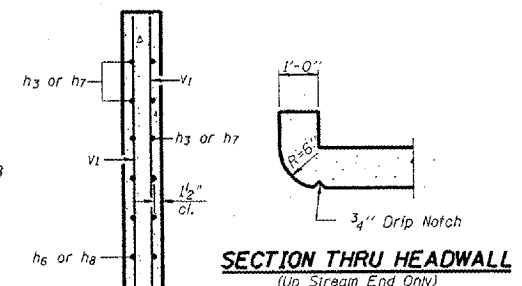
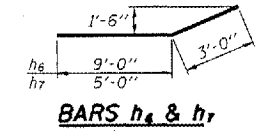
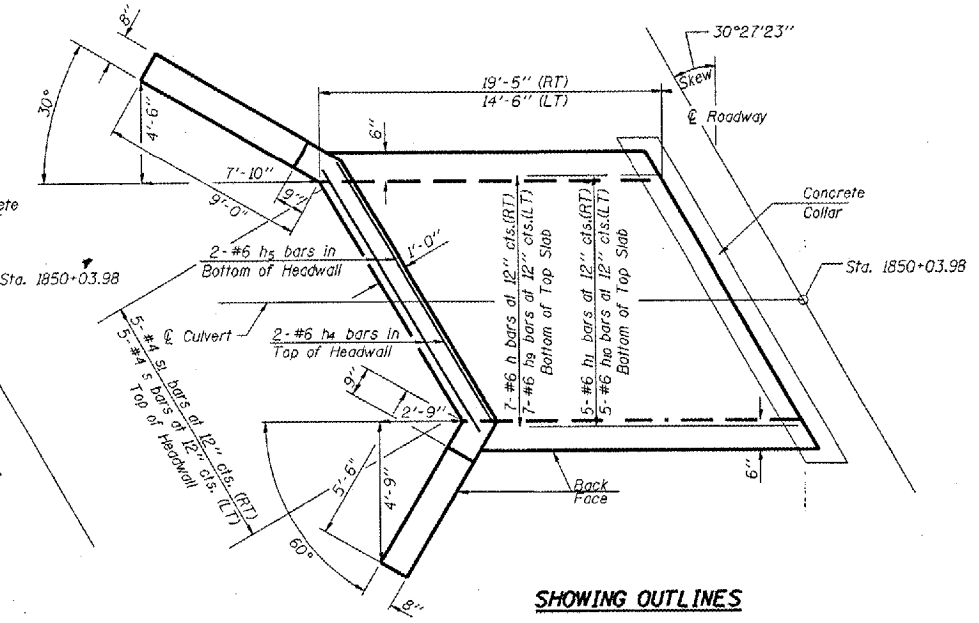
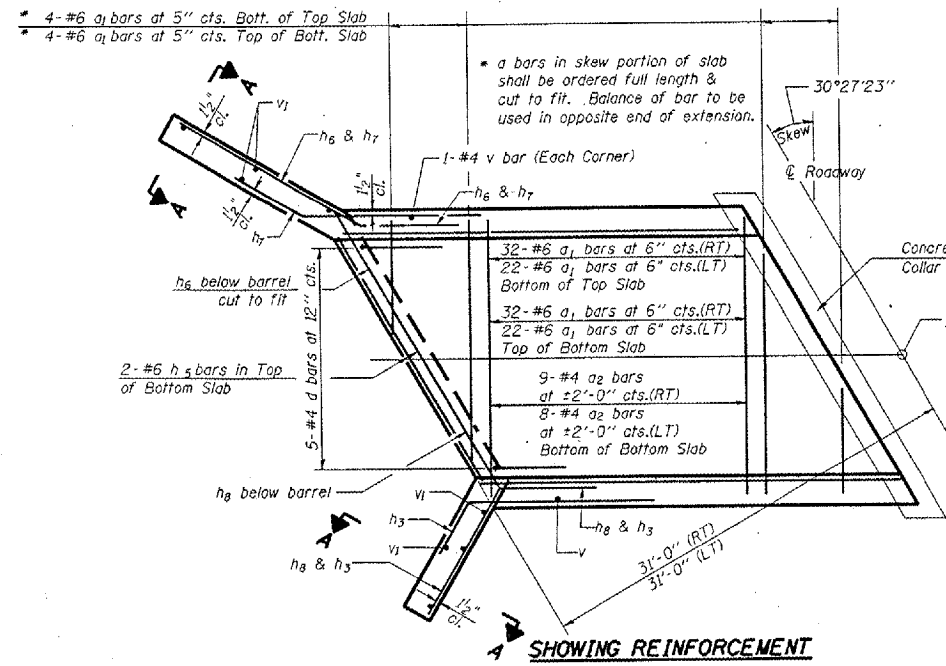
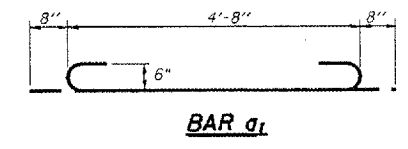
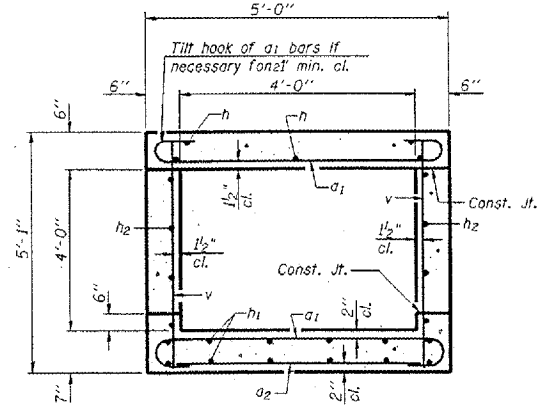
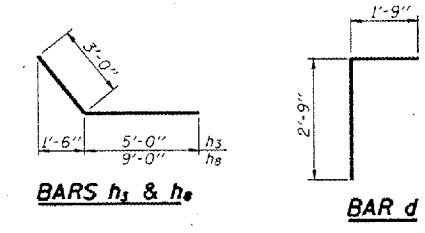
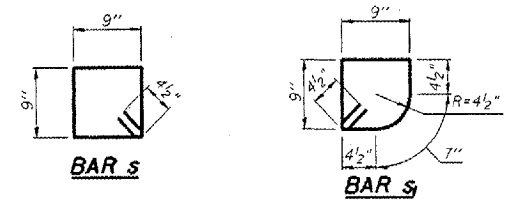
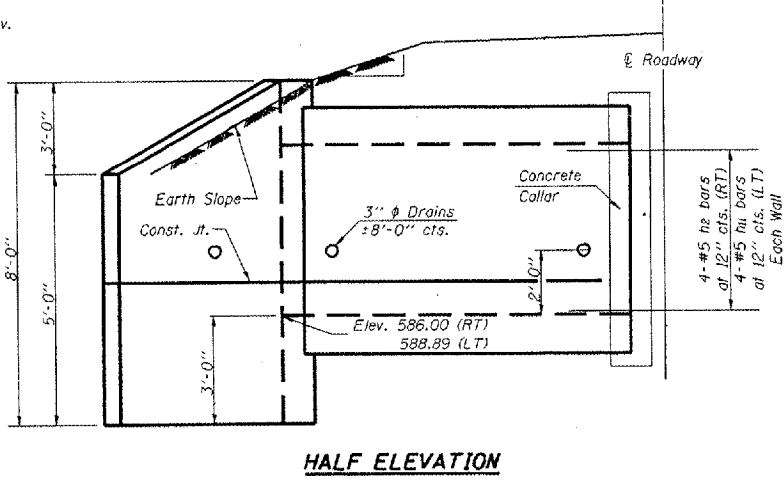
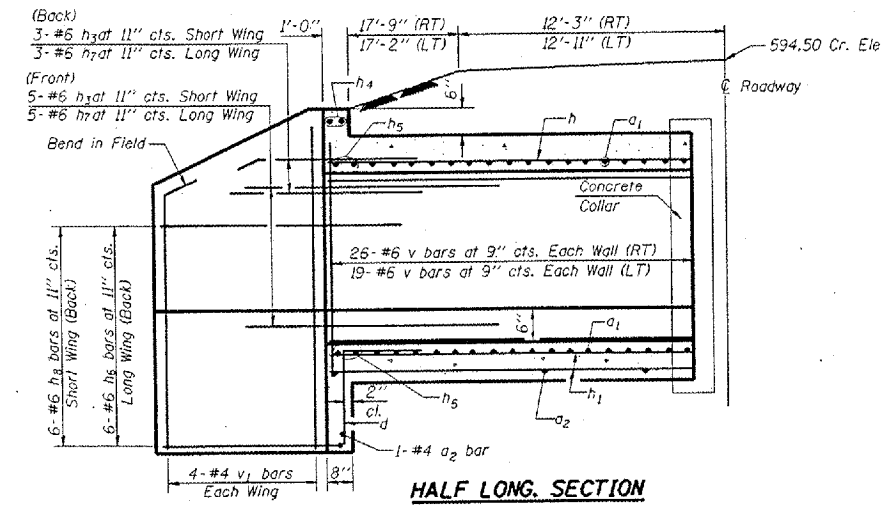


F.A.S. RTEL	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
380		KNOX	35	17
D4 CULVERT EXT/REPAIR 2006				



DESIGN STRESSES
 $f_y = 60,000 \text{ psi}$
 $f'_c = 3,500 \text{ psi}$

LOADING HS 20-44 & ALT.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a ₁	124	#6	6'-0"	C
a ₂	18	#4	4'-6"	—
d	10	#4	4'-6"	—
h	7	#6	19'-0"	—
h ₁	10	#4	19'-0"	—
h ₂	8	#5	19'-0"	—
h ₃	16	#6	8'-0"	—
h ₄	4	#6	4'-6"	—
h ₅	8	#6	4'-6"	—
h ₆	12	#6	12'-0"	—
h ₇	16	#6	8'-0"	—
h ₈	12	#6	12'-0"	—
h ₉	7	#6	14'-0"	—
h ₁₀	10	#6	14'-0"	—
h ₁₁	8	#5	14'-0"	—
s	5	#4	3'-9"	□
s1	5	#4	3'-7"	□
v	102	#4	4'-9"	—
v1	16	#4	7'-6"	—
Concrete Box Culverts			Cu. Yd.	11.8
Reinforcement Bars			Pound	3370

PLAN

NOTES

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.
 Reinforcement Bars shall conform to the requirements of AASHTO M-31, M-42 or M-53, Grade 60.
 Bars indicated thus 12 x 4-#5 etc. indicates 12 lines of bars with 4 lengths per line.
 All construction joints shall be bonded.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 4' X 4' CULVERT
 DETAILS
 STA. 1850+03.98