

**BILL OF MATERIAL**

Bar	No.	Size	Length
a1	36	#9	15'-2"
a2	6	#4	12'-3"
d	13	#4	4'-6"
h	13	#7	11'-2"
h1	24	#5	11'-2"
h2	10	#5	11'-2"
h3	14	#4	12'-8"
h4	2	#6	15'-8"
h5	4	#7	15'-8"
h6	10	#4	22'-6"
h7	4	#6	14'-8"
h8	4	#7	14'-8"
h9	5	#5	5'-3"
s	49	#4	4'-1"
v	31	#4	6'-6"
v1	28	#4	9'-0"
v2	4	#5	9'-0"
w	5	#5	15'-0"
w1	5	#5	13'-0"
z	28	#4	7'-0"
Concrete Structures	Cu Yd		24.1
Reinforcement Bars	Pound		4067
Expansion Bolts 3/4"	Each		28

\* Order a1 bars full length. Cut bars in field to fit skew and use the remainder of bars at other end of slab, 12-#9 a1 bars at 1/2" cts., Top of Bottom Slab, 4-#4 a2 bars at 2'-0" cts., Bottom of Bottom Slab, 12-#9 a1 bars at 1/2" cts., Bottom of Top Slab

**NOTES:**

- Bench Mark: C of IL Route 33 at C of Culvert (Sta. 238+44.88), Elev. 589.55.
- Design Fill Height 2' Lt.
- Exposed edges shall be chamfered 3/4".
- Class SI Concrete shall be used throughout.
- Reinforcement Bars shall conform to the requirements of AASHTO M31 or M322, Grade 60.
- Bars indicated thus 12x4-#5 etc. indicates 12 lines of #5 bars with 4 lengths per line.
- Nonmetallic water seal used in the wingwall joints shall extend from the top of the footing to within 5" of the top of the headwall.
- For Backfilling and Embankment, see Standard Specifications.
- Hooked Expansion Bolts shall consist of self-drilling expansion shields and hooked bolts. Hooked Bolts shall extend a minimum of 9" into new concrete.

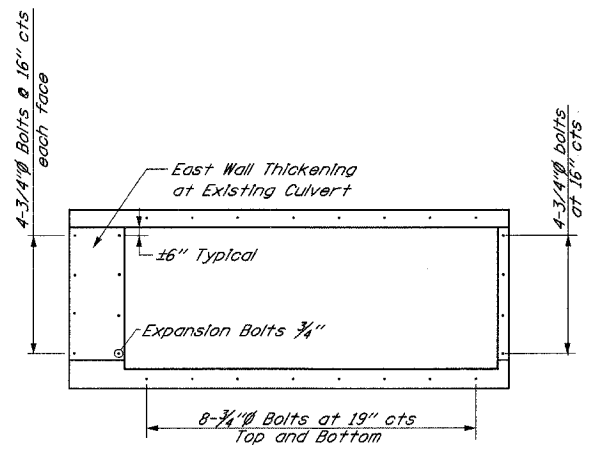
**SPECIFICATION**

1996 AASHTO with 1997, 1998, 1999, 2000 and 2002 Interims

**DESIGN STRESSES**

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

**LOADING HS 20-44**



**EXPANSION BOLT PLACEMENT DETAIL**

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
**CULVERT EXTENSION DETAILS**  
C of STA. 238+44.88 LT.  
SHEET 2 OF 5  
DATE 9/01  
DRAWN BY BDM  
CHECKED BY SJK