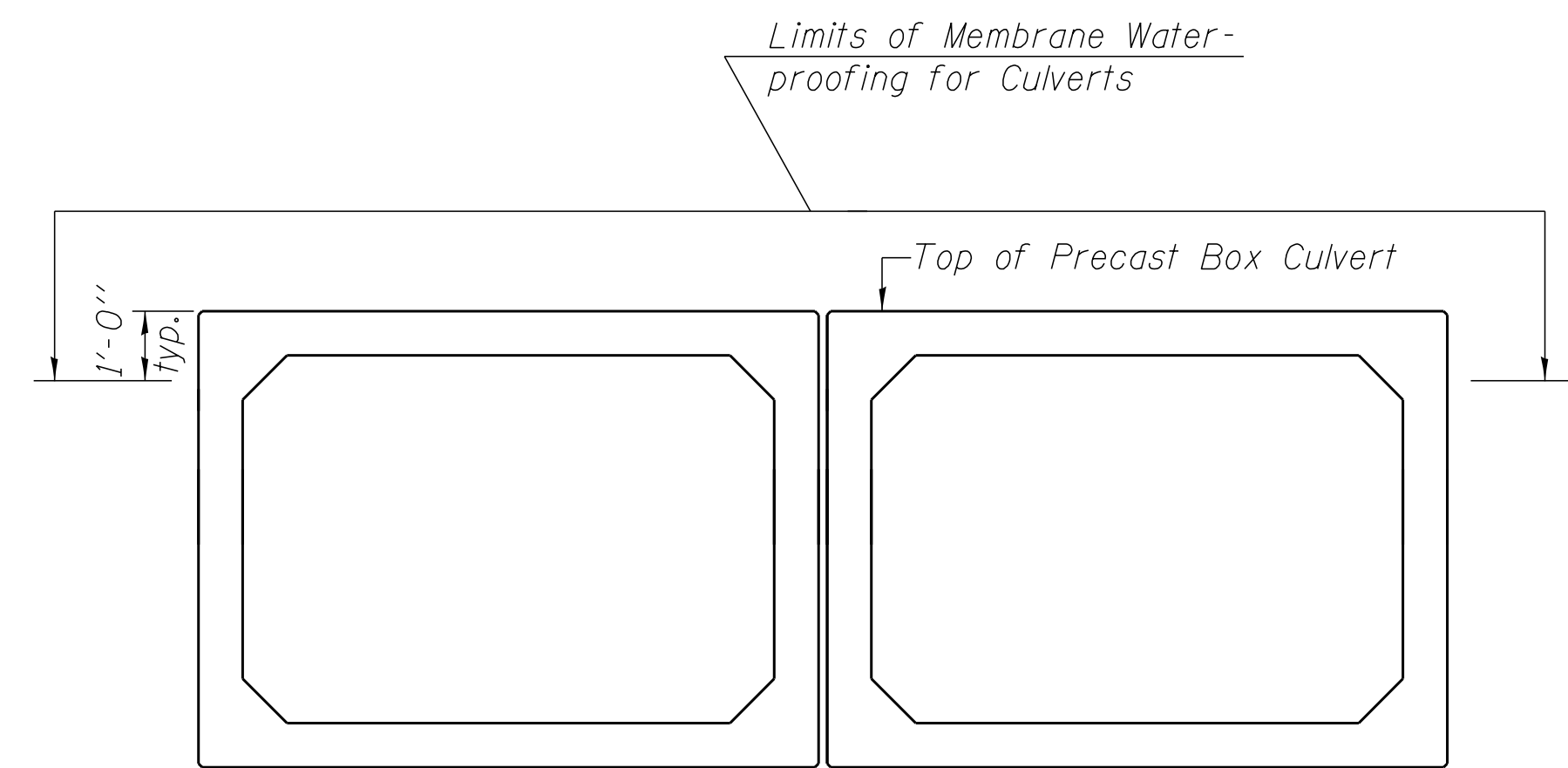


(Looking at Headwalls)



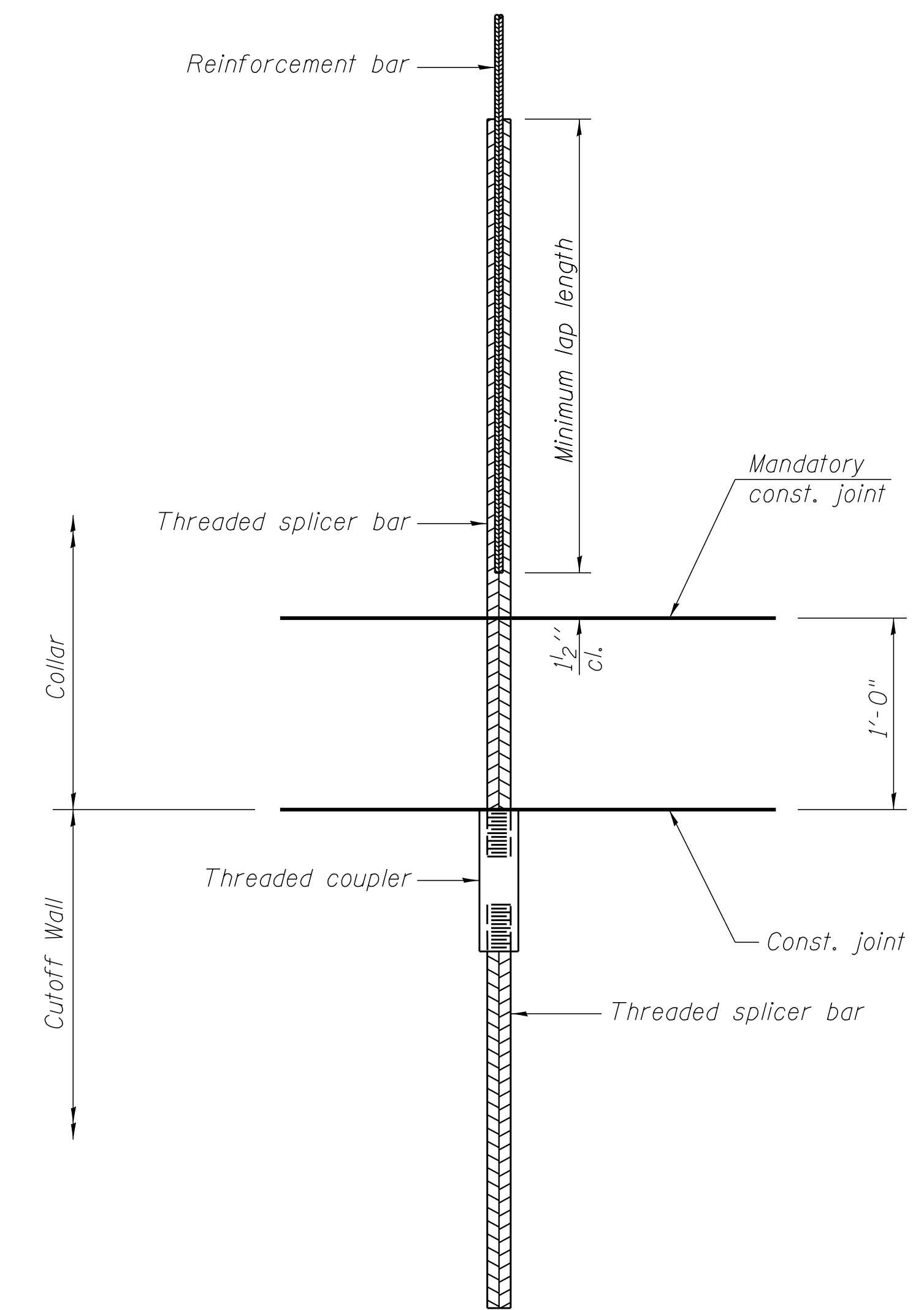
(Looking at Box Sections)

**LIMITS OF MEMBRANE WATER-PROOFING FOR CULVERTS**

Note: Membrane Waterproofing for Culverts shall cover top of the top slab, top one foot of side walls, and 6 inches up inside face of the headwalls.

**NOTES**

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.  
 All reinforcement shall be lapped and tied to the splicer bars.  
 See approved list of bar splicer assemblies and mechanical splicers for alternatives.



**BAR SPLICER ASSEMBLY FOR BOX CULVERT END SECTION**

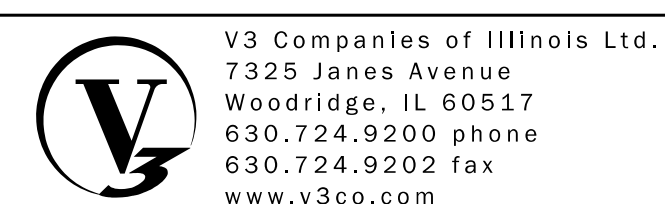
Bar size to be spliced	Minimum Lap Lengths					
	Table 1	Table 2	Table 3	Table 4	Table 5	Table 6
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-7"	2'-11"
5	1'-9"	2'-5"	2'-7"	2'-11"	3'-3"	3'-8"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-10"	4'-5"
7	2'-9"	3'-10"	4'-2"	4'-8"	5'-2"	5'-10"
8	3'-8"	5'-1"	5'-5"	6'-2"	6'-9"	7'-8"
9	4'-7"	6'-5"	6'-10"	7'-9"	8'-7"	9'-8"

- Table 1: Black bar, 0.8 Class C
- Table 2: Black bar, Top bar lap, 0.8 Class C
- Table 3: Epoxy bar, 0.8 Class C
- Table 4: Epoxy bar, Top bar lap, 0.8 Class C
- Table 5: Epoxy bar, Class C
- Table 6: Epoxy bar, Top bar top, Class C

Threaded splicer bar length = min. lap length + 1/2" + thread length

Location	Bar size	No. assemblies required	Table for minimum lap length
* Cutoff Wall	5	10	1

\* For one end section



USER NAME =	DESIGNED - CJB	REVISIONS
	CHECKED - CCF	REVISIONS
PLOT SCALE =	DRAWN - CCF	REVISIONS
PLOT DATE =	CHECKED - CJB	REVISIONS

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**BOX CULVERT END SECTION DETAILS AND WATERPROOFING LIMITS  
STRUCTURE NO. 050-2055**

SHEET NO. 5 OF 6 SHEETS

F.A.P. RTE. 786	SECTION (110) BR-2	COUNTY LASALLE	TOTAL SHEETS 69	SHEET NO. 32
			CONTRACT NO. 66B19	
ILLINOIS FED. AID PROJECT				