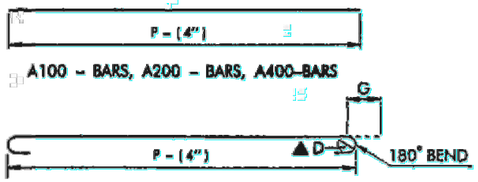
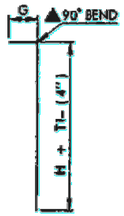
DESCRIPTION	REVISIONS	DATE
RE-ISSUED W/METRIC 1996 SPECS, A2 Bars & Design Data Sheet		Apr. 7/99
Bar Length B1 Equation, Dt & T Values		Jan. 6/00

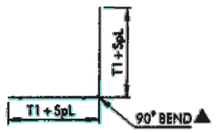


▲ MIN. D = 6d FOR #3 THROUGH #8 STEEL
▲ MIN. D = 8d FOR #9 THROUGH #11 STEEL
▲ MIN. D = 10d FOR #14 AND #18 STEEL
WHERE d = NOMINAL STEEL DIAMETER

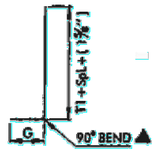


A1–BARS

SpL = LAP SPLICE LENGTH



A2–BARS



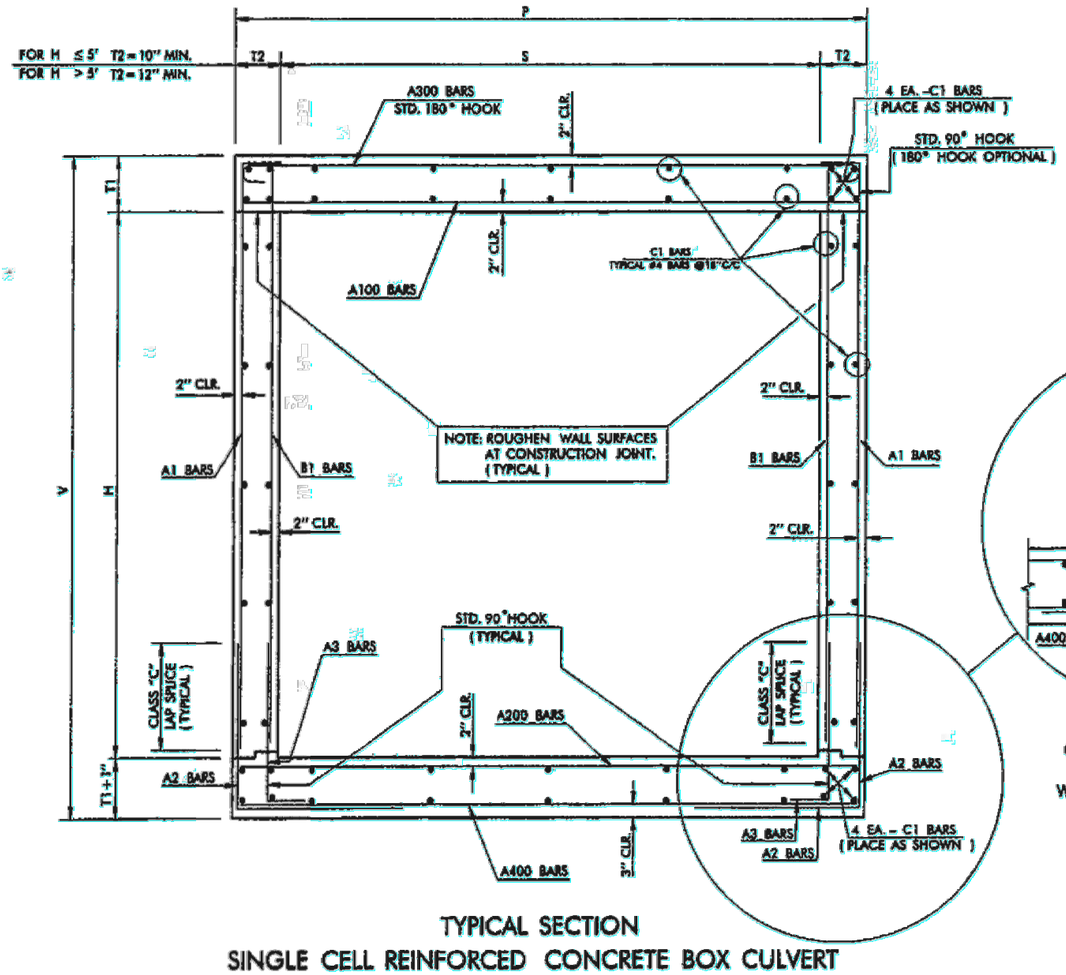
A3–BARS

B1–BARS

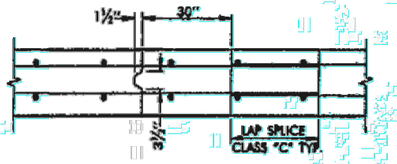
BAR NO.	▲ DIAM. D	LAP SPLICE LENGTH CLASS "C" SpL	ACI STANDARD HOOKS 180° HOOKS G	ACI STANDARD HOOKS 90° HOOKS G
#3	2¼"	15"	5"	6"
#4	3"	20"	6"	8"
#5	3¾"	26"	7"	10"
#6	4½"	34"	8"	12"
#7	5¼"	46"	10"	14"
#8	6"	60"	11"	16"
#9	9"	75"	15"	19"
#10	10"	95"	17"	22"
#11	11"	117"	19"	24"

CLASS "C" TENSION LAP SPLICES ARE BASED ON 1.7 x ld (DEVELOPMENT LENGTH), AASHTO 8.32

STANDARD HOOKS ARE BASED ON CRITERIA SET BY THE CONCRETE REINFORCING STEEL INSTITUTE.



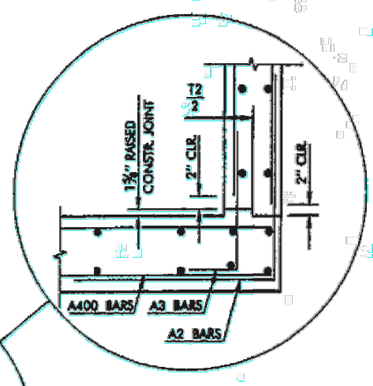
TYPICAL SECTION
SINGLE CELL REINFORCED CONCRETE BOX CULVERT



LONGITUDINAL CONSTRUCTION JOINT DETAIL

THE MAXIMUM SPACING OF THE CONSTRUCTION JOINT SHALL BE 100'–0" LONGITUDINAL REINFORCING STEEL SHALL EXTEND THROUGH THE JOINT A MINIMUM OF 30" AND THE LONGITUDINAL STEEL IN THE ADJOINING SECTION SHALL BE LAPPED WITH A CLASS C SPLICE.

WHEN NO CONSTRUCTION JOINTS ARE INDICATED ON THE PLANS, THE CONSTRUCTION JOINT MAY BE USED WHEN THE BARREL LENGTH EXCEEDS 60 FEET.



TYPICAL CONSTRUCTION JOINT FOR ALL EXTERIOR WALLS AT BOTTOM SLAB

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
2. ALL CONCRETE EDGES SHALL HAVE A 1 1/2" CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. ALL CHAMFER STRIPS SHALL BE SIZED LUMBER.
3. ALL REINFORCING STEEL SHALL BE GRADE 60 AND HAVE A 2" MINIMUM CLEARENCE UNLESS OTHERWISE SHOWN ON THE PLANS.
4. REINFORCING STEEL IN BOTTOM SLAB SHALL BE SUPPORTED ON BAR CHAIRS. CHAIRS SHALL BE SUPPORTED ON TIMBER PLANKS OR CLASS C CONCRETE STRIPS SPACED AT 4.0 FOOT CENTERS. THE TOP CHAIR SUPPORTS SHALL BE AT THE ELEVATION OF THE BOTTOM OF THE FOOTING.
5. REINFORCING STEEL IN THE TOP SLAB SHALL BE SUPPORTED ON SLAB SPACERS .
6. REINFORCING STEEL IN THE WALLS SHALL BE HELD IN PLACE BY METAL CHAIRS. MAXIMUM SPACING OF CHAIRS SHALL BE ON 6.0 FOOT CENTERS.
7. COST OF METAL CHAIRS, WOOD PLANKS OR CONCRETE STRIPS SHALL BE INCLUDED ON OTHER ITEMS OF WORK.
8. FOR DETAILS OF ONE CELL R.C.B. WINGS AND HEADWALLS, SEE ENGLISH ROADWAY STANDARD RCB1H–1 OR STANDARD RCB2H–1.
9. THE QUANTITY FOR REINFORCING STEEL DOES NOT INCLUDE LAP SPLICES OF C1 BARS IN THE LENGTH OF THE BARREL. THE NUMBER OF SPLICES USED IS TO BE DETERMINED BY THE CONTRACTOR. COST OF ADDITIONAL REINFORCING STEEL FOR SPLICES TO BE INCLUDED IN THE BID PRICE FOR REINFORCING STEEL.

DESIGN DATA	
CONCRETE (CLASS A)	f'c = 3 KSI
REINFORCING STEEL	fy = 60 KSI
LOADING: HS20	
DESIGNED BASED ON LOAD FACTOR DESIGN (LFD)	

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
509.06 (B)	CLASS A CONCRETE	C.Y.
511.06 (A)	REINFORCING STEEL	LBS.

APPROVED BY ROADWAY ENGINEER C. M. Sendrowski DATE 9/15/00

OKLAHOMA DEPT. OF TRANSPORTATION
ROADWAY STANDARD (ENGLISH)
SINGLE CELL REINFORCED CONCRETE BOX CULVERTS FOR SPANS 3' TO 10' AND FILLS 3' TO 20'

1999 SPECIFICATIONS	TYPICAL SECTION	RCB3–1	01E
			R-54CE