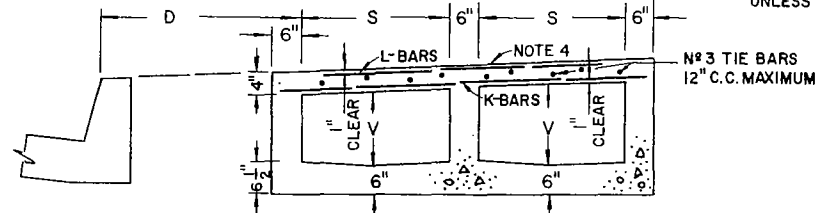
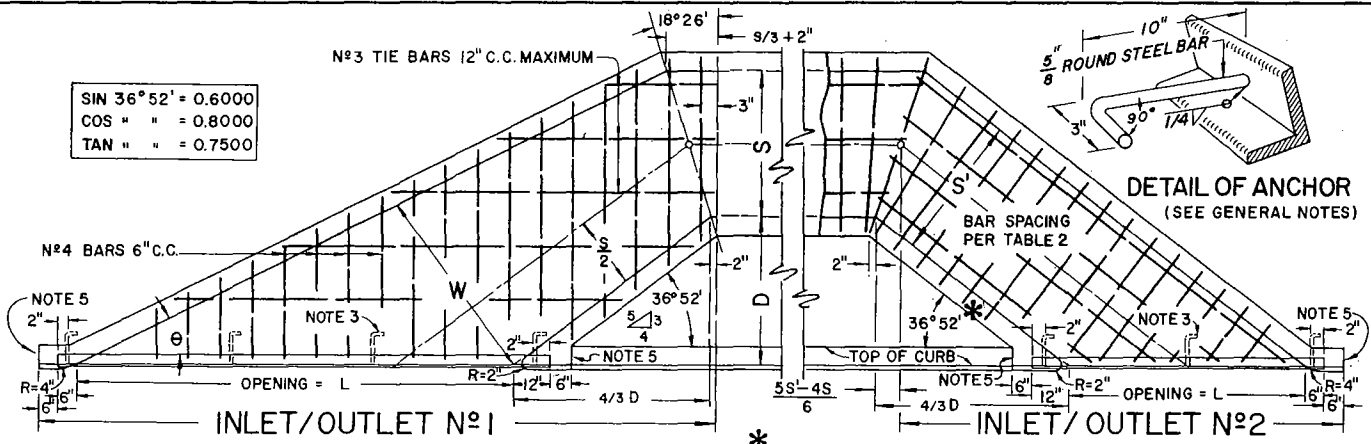
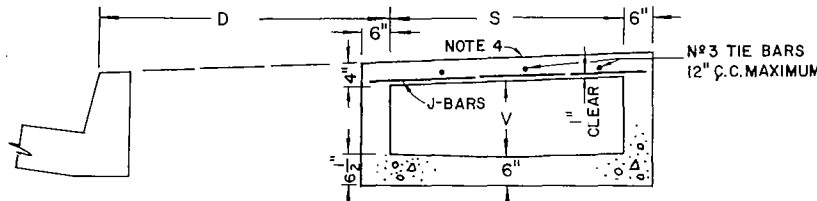


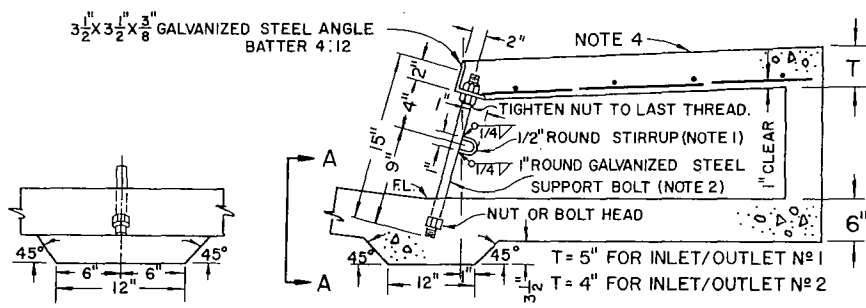
SIN 36° 52' = 0.6000
 COS " = 0.8000
 TAN " = 0.7500



TYPICAL SECTION OF DOUBLE BOX IN PARKWAY
 SEE TABLE 1



TYPICAL SECTION OF SINGLE BOX IN PARKWAY
 SEE TABLE 2



SECTION A-A
 TYPICAL SECTION INLET/OUTLET STRUCTURE

NOTES:

- NOTE 1 - CATCH BASIN PROTECTION BAR AND STIRRUPS TO BE INSTALLED AT INLETS ONLY.
- NOTE 2 - STEEL SUPPORTS TO BE SPACED EVENLY IN OPENING AND NOT TO EXCEED 7" C.C. THREAD 3" ON UPPER END.
- NOTE 3 - NOT LESS THAN 3-5/8" DIA. X 10" ANCHOR BOLTS WELDED TO ANGLE.
- NOTE 4 - SLOPE 1/4" PER FOOT UNLESS OTHERWISE SHOWN; SIDEWALK FINISH.
- NOTE 5 - CONSTRUCTION JOINT.

GENERAL NOTES:

REINFORCING STEEL SHALL HAVE A COVERING OF AT LEAST 1 INCH OF CONCRETE AT ALL POINTS.
 FOR REINFORCING AROUND MANHOLES IN SIDEWALK AREA SEE STANDARD MANHOLE FRAME AND COVER N° 5.
 SPACING OF TRANSVERSE REINFORCEMENT SHALL BE MEASURED ALONG $\frac{1}{2}$ OF CULVERT EXCEPTING INLET/OUTLET N° 1.
 ALL REINFORCING BARS SHALL BE LAPPED TWENTY DIAMETERS AT ALL SPLICES.
 FLOOR OF BOXES TO BE TROWELED SMOOTH.
 A HEADED STEEL STUD 1/2" X 5 3/16" WITH HEAD D=" ATTACHED BY A FULL PENETRATION BUTT WELD MAY BE USED AS AN ALTERNATE ANCHOR.

FORMULAS:

INLET/OUTLET N° 1: AREA OF TOP SLAB (IN SQ. FT.) = $\frac{1}{2} M (\frac{1}{3} + 2L + \frac{8}{3} D + \frac{1}{\sin \theta} - \frac{M}{\tan \theta}) - \frac{1}{6} (2D - 1)^2$ $M = 0.50 + S + D$
 " : TOTAL VOLUME (IN CU. YD.) = $0.0026VD + 0.00566 [M(1 + 6L + 8D + \frac{3.27}{\sin \theta} - \frac{3M}{\tan \theta}) + (2D - 1)^2]$
 " : $W = \frac{15L(S+D)}{12L+25D+55}$ $\tan \theta = \frac{3(S+D)}{3L+4D-5}$ ALL DIMENSIONS ARE IN FEET EXCEPT 'V' WHICH IS IN INCHES.
 " : STEEL - 1 SQ. FT. IN PLAN = 1' OF N° 3 BARS & 2' OF N° 4 BARS.

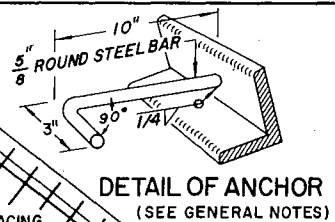
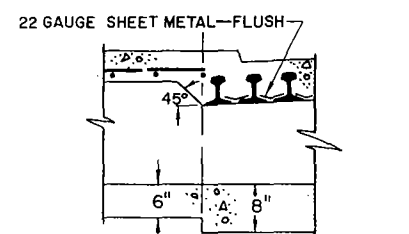


TABLE 1

K-BARS		L-BARS	
SPAN	SIZE	SPAN	SIZE
3'-0"	N° 3	3'-0"	N° 3
3'-6"	"	3'-6"	"
4'-0"	"	4'-0"	"
4'-6"	"	4'-6"	"
5'-0"	"	5'-0"	"
5'-6"	"	5'-6"	"
6'-0"	"	6'-0"	"

TABLE 2

J-BARS			
SPAN	SIZE	SPAN	SIZE
2'-6"	N° 3	2'-6"	N° 3
3'-0"	"	3'-0"	"
3'-6"	"	3'-6"	"
4'-0"	"	4'-0"	"



TRANSITION FROM DEFORMED BAR TO RAIL REINFORCING

TABLE 3

SPAN	CUBIC YARDS OF CONC. PER 10' V=DEPTH (INCHES)	POUNDS OF STEEL/10'
2'-6"	1.101 + 0.031V	26
3'-0"	1.259 + 0.031V	29
3'-6"	1.417 + 0.031V	34
4'-0"	1.574 + 0.031V	39
4'-6"	1.731 + 0.031V	53
5'-0"	1.889 + 0.031V	71
5'-6"	2.046 + 0.031V	86
6'-0"	2.204 + 0.031V	100
DOUBLE 3'-0"	2.333 + 0.046V	69
DOUBLE 3'-6"	2.645 + 0.046V	82
DOUBLE 4'-0"	2.956 + 0.046V	97
DOUBLE 4'-6"	3.267 + 0.046V	114
DOUBLE 5'-0"	3.578 + 0.046V	147
DOUBLE 5'-6"	3.889 + 0.046V	203
DOUBLE 6'-0"	4.200 + 0.046V	276

LOS ANGELES COUNTY ROAD DEPARTMENT

REINFORCED CONCRETE BOX CULVERT N° 12

STANDARD PLAN

APPROVED

S. L. Mosher
 ROAD COMMISSIONER

1 Dec 67
 DATE

60-12

DRAWN BY: F.H.K., 5-60. CHECKED BY: J.R.A., 5-60.