

TABLE NO. 1
STEEL RAIL SPACING FOR TOP SLAB IN ROADWAY AND DRIVEWAYS
All spacing dimensions center to center

Weight per yard	Width of base	CULVERT SPANS				
		2'	3'	4'	5'	6'
20#	2 3/8"	4 1/2"	3"	—	—	—
25#	2 1/2"	5 1/2"	3 1/2"	3"	—	—
30#	3 1/8"	7 1/2"	5 1/2"	4 1/2"	3 1/2"	—
35#	3 3/8"	8 1/2"	6 1/2"	5 1/2"	4 1/2"	3 1/2"
40#	3 1/2"	9 1/2"	7 1/2"	6 1/2"	5 1/2"	4 1/2"
45#	3 3/4"	9 3/4"	7 3/4"	6 3/4"	5 3/4"	—
50#	3 7/8"	9 7/8"	7 7/8"	6 7/8"	—	—
55#	4 1/8"	10 1/8"	8 1/8"	7 1/8"	6 1/8"	—
60#	4 1/4"	10 1/4"	8 1/4"	7 1/4"	—	—
65#	4 1/2"	10 1/2"	8 1/2"	7 1/2"	—	—
70#	4 5/8"	11 1/8"	9 1/8"	8 1/8"	—	—

TABLE NO. 2
TOP SLAB REINFORCEMENT STEEL AND SPACING FOR ROADWAY CULVERT
All spacing dimensions center to center.* For these sizes and for slabs less than 5' thick use rail cover according to Table No. 1

Depth of top slab	Steel in top slab	CLEAR SPAN S				
		2'	3'	4'	5'	6'
5'	upper	#7 at 4"	#8 at 4"	—	—	—
	lower	#6 at 4"	#7 at 4"	—	—	—
6'	upper	#6 at 6"	#6 at 8"	#7 at 4"	#8 at 4"	—
	lower	#6 at 4"	#6 at 4"	#7 at 4"	#7 at 4"	—
7'	upper	—	#5 at 8"	#7 at 4"	#8 at 4"	—
	lower	#6 at 4 1/2"	#6 at 4"	#6 at 4"	#7 at 4"	#7 at 4"
8'	upper	—	—	—	#6 at 4"	—
	lower	#4 at 5"	#5 at 5"	#5 at 5"	#6 at 5"	#6 at 4"
9'	upper	#4 at 5"	#4 at 5"	#5 at 5"	#5 at 5"	#5 at 4 1/2"
	lower	#4 at 5 1/2"	#4 at 5 1/2"	#4 at 5 1/2"	#4 at 4"	#4 at 4"

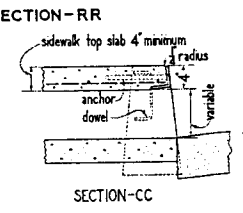
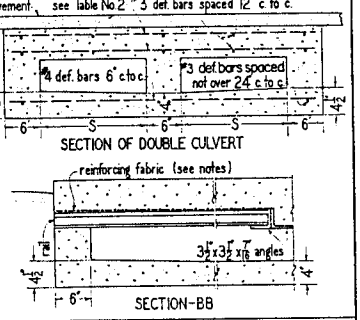
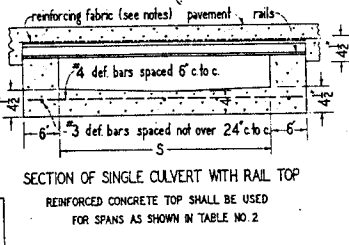


TABLE NO. 3
TOP SLAB REINFORCEMENT STEEL IN SIDEWALK CULVERT
All bars shall be #3 deformed. Longitudinal bars shall be spaced not over 12' on centers

Clear span W	Spacing on centers	Length of bars
2	6'	2'-10"
3	6'	3'-10"
4	6'	4'-10"
5	4'	5'-10"
6	3'	6'-10"



DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING
CITY OF LOS ANGELES

STANDARD CULVERT

DESIGNED BY C.H. WIS	SUBMITTED ENGINEER OF STONE BRIDGE DESIGN	APPROVED DEPUTY ENGINEER IN CHARGE
DRAWN BY E.C.R.	PREPARED BY ENGINEER OF ROAD & BRIDGE	CITY ENGINEER

STANDARD PLAN
DL-2327

SUPERSEDES DL-571
SUPERSEDES DL-889
SUPERSEDES DL-1836

SHEET 1 OF 2 SHEETS

REVISED BY R.A.N.
REVISED BY E.L.C. DEC. 1934

NOTES ON REVERSE SIDE

NOTES

BIDDERS shall name a lump-sum for all work within the "Culvert Limits." This includes (a) the culvert, (b) sidewalk, (c) gutter over the culvert, (d) curb, (e) curb armor if specified on the improvement plan, and (f) those portions of the pavement where the culvert top slab is constructed to pavement grade. The "Culvert Limits" are shown and labeled on the improvement plan.

CONCRETE Exception: When the culvert is to be constructed within the limits of a proposed sidewalk or is contiguous to such a sidewalk, the top of the culvert shall be poured monolithic with the sidewalk, using the same class of concrete as in the sidewalk.

CURB adjacent to the culvert and within the "Culvert Limits" shall be type B unplastered curb.

CURB over culvert shall be poured monolithic with culvert.

DIMENSIONS marked V hereon are variable and are shown on improvement plan.

EXPOSED SURFACES within the "Culvert Limits" shall conform in slope, grade, color, finish, and scoring to adjoining improvements. Where no sidewalk exists, the top slab in the sidewalk area shall be finished to conform to standard sidewalk slope and finish, and scoring lines shall conform as nearly as possible to 20-inch squares.

FORMS: Curvature of all bends in culvert and of the side walls at inlets and outlets shall be made by curved forms and shall not be made by plastering. Corrugated metal forms shall not be used.

GALVANIZING: Steel angle assembly only shall be galvanized.

GUTTER over culvert shall be poured monolithic with culvert.

INVERT shall be troweled and retroweled to produce a hard, polished surface of maximum density and smoothness. The V-shape specified for invert shall extend to within 3 feet of inlets and outlets, from which points invert shall be warped to join the gutter.

KEY-WAYS of a type approved by the Engineer shall be used along the invert when sidewalks and invert are poured separately, and in the top of sidewalks when steel bar (not rail) reinforcement is used in the top slab.

MANHOLES shall be constructed in culvert at locations shown hereon, unless other locations are shown on the improvement plan. To make manholes in street area and driveways fit the finished surface, the Contractor shall vary the height of the concrete walls and shall rest the manhole frame supports upon the walls. For bedding of rail-supports see under Rails, below.

RAILS: Rail-supports for culvert manholes, and rails when used, shall be set firmly upon the walls by bedding with Class mortar, or by the use of steel shims not less than 4 inches by 6 inches.

REINFORCING FABRIC over rails shall be electrically welded wire fabric, of 14-gage wire with 4-inch by 4-inch spacing, or equivalent. Fabric shall be as wide as the length of rails and shall not be closer to the surface than 1-inch. Fabric shall be held in position during placing of concrete in a manner acceptable to the Engineer.

REINFORCING STEEL (either bars or rails at the option of the Contractor, unless otherwise specified) shall be in accordance with tables hereon. Clearance of bars shall be 1 inch from top and bottom of top slab, and 1 inch from top of bottom slab. Spacing of transverse reinforcement shall be measured along center line of culvert.

SHIMS: See under Rails.

NOTES

SIDEWALK within the "Culvert Limits" shall be constructed monolithic with the top slab of culvert.

TOP SLAB of culvert, under the following conditions, shall be increased in thickness so that the upper surface shall coincide with the finished surface of the adjoining pavement. The surface finish of such thickened portions shall be the same as that specified for concrete pavements; the edges shall be rounded to a 1/4-inch radius.

(1) For concrete pavements, — those portions of the top slab which, as designed, project above the subgrade of pavement. Any portion so constructed shall be the full width of the culvert and shall extend in both directions along the length of the culvert to the nearest construction joints beyond the area of projection above the subgrade.

(2) For pavements having a bituminous wearing surface, — those portions of the top slab which, as designed, project into the wearing surface.

DEPARTMENT OF PUBLIC WORKS	
BUREAU OF ENGINEERING	CITY OF LOS ANGELES
NOTES FOR STANDARD CULVERT	
STANDARD PLAN	
DL-2327	
SUPERSEDES DL-871 SUPERSEDES DL-989 SUPERSEDES DL-1036	
SHEET 2	OF 2 SHEETS
DESIGNED BY T. A. N. DRAWN BY C. C. R. CHECKED BY U. S.	SUBMITTED, <i>Car. S. L.</i> 1954 "LEGISLATION DIVISION"
PREPARED BY ENGINEER OF ROAD & SURVEYS	APPROVED, <i>Robert C. ...</i> 1954 DEPUTY ENGINEER IN CHARGE CITY ENGINEER

REVISED BY R.A.K.
 REVISED BY E.L.C. DEC. 1954