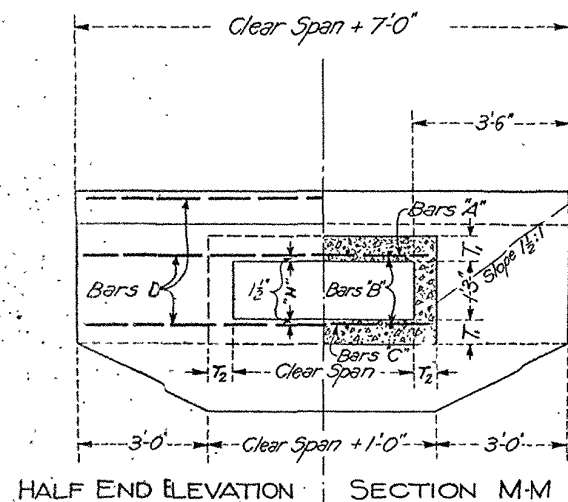
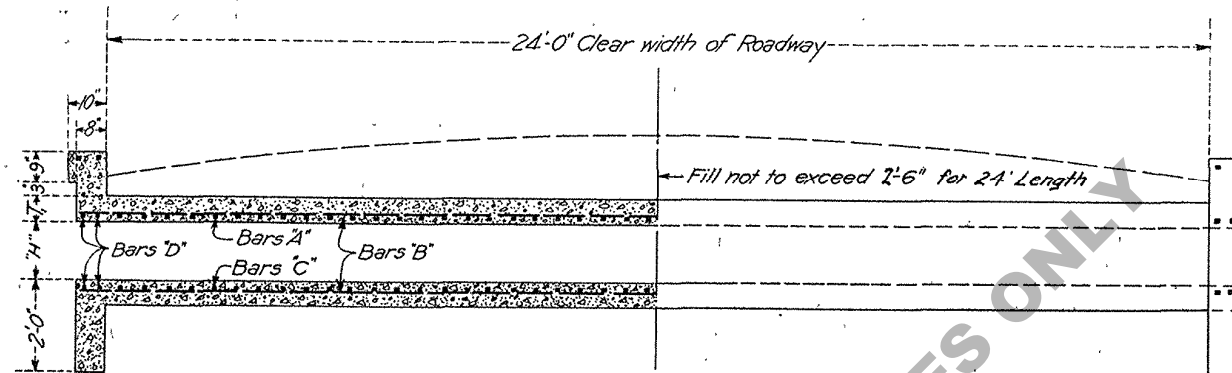




HALF END ELEVATION SECTION M-M



LONGITUDINAL SECTION HALF SIDE ELEVATION

DESIGN DATA
Concentrated Load, 15 tons typical truck.
Impact Allowance 30% of live load.
Steel in Tension, 16,000 lbs. per sq. in.
Concrete in Compression, 650 lbs. per sq. in.
Weight of Paving or Ballast not to exceed 180 lbs. per sq. ft.

LENGTH OF CULVERT FOR VARIOUS HEIGHTS OF FILL

HEIGHT FILL GROUND TO SUBGRADE FT.	LENGTH CULVERT FEET
2	24
3	27
4	30
5	33
6	36
7	39
8	42
9	45
10	48

WATERWAY		BARREL OF CULVERT (24' LENGTH)																2 HEADWALLS				TOTAL OF ALL STEEL LBS.	TOTAL OF ALL CONCRETE CU YD.
CLEAR SPAN FEET	CLEAR HEIGHT "H" FEET	AREA SQ.FT.	T ₁	T ₂	STEEL REINFORCEMENT ½" Ø										CONCRETE 1:2:4		STEEL REINFORCEMENT ½" Ø		CONCRETE 1:2:4 CU. YDS.				
					BARS A		BARS B		BARS C		WEIGHT		PER LINEAR FOOT CU YDS.	TOTAL CU YDS.	LENGTH	BARS D ½" Ø							
					NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	PER LINEAR FOOT				TOTAL		NO.	WEIGHT				
2	1.25	2.50	6"	6"	8"	2'-8"	36	25'-0"	4	8"	2'-8"	36	10"	250	.158	3.78	9'-0"	8'-8"	12	90"	1.78	340	5.56
3	1.25	3.75	6"	6"	7"	3'-8"	41	25'-0"	6	7"	3'-8"	41	16	385	.194	4.67	10'-0"	9'-8"	12	100	1.96	485	6.63
4	1.25	5.00	6½"	6"	6"	4'-8"	48	25'-0"	8	6"	4'-8"	48	23	550	.246	5.91	11'-0"	10'-8"	12	110	2.16	660	8.07
5	1.25	6.25	7½"	6"	6"	5'-8"	48	25'-0"	10	8"	5'-8"	36	26	615	.324	7.77	12'-0"	11'-8"	12	120	2.40	735	10.17
2	2.00	4.00	6"	8"	8"	2'-8"	36	25'-0"	4	8"	2'-8"	36	10	250	.222	5.33	9'-0"	8'-8"	12	90	2.05	340	7.38
3	2.00	6.00	6"	8"	7"	3'-8"	41	25'-0"	6	7"	3'-8"	41	16	385	.260	6.23	10'-0"	9'-8"	12	100	2.23	485	8.46
4	2.00	8.00	6½"	8"	6"	4'-8"	48	25'-0"	8	6"	4'-8"	48	23	550	.313	7.51	11'-0"	10'-8"	12	110	2.43	660	9.24
5	2.00	10.00	7½"	8"	6"	5'-8"	48	25'-0"	10	8"	5'-8"	36	26	615	.388	9.32	12'-0"	11'-8"	12	120	2.67	735	11.29

The above tables are based on the use of 1/2" rods. (net area - .025 sq. in.) Other sizes may be used provided that they give the same net sectional area of steel per ft. width of slab. All reinforcing shall be deformed steel rods.

In computing the quantities in culvert, the barrel of the culvert was assumed as extending to back face of headwalls.

Depth of opening may be increased to not more than 1'-9" provided the thickness of side walls be made 8". The height (and length) of headwalls must be correspondingly increased.

All exposed edges of concrete to be chamfered 3/4".

All concrete to be 1:2:4 mixture.

If a greater area of opening is required this design may be used in the form of multiple openings, each slab having the thickness and reinforcement shown hereon, with the intermediate partition walls 6" thick.

SPANS 2' TO 5' CLEAR SHALLOW BOX CULVERTS BASED ON 24' ROADWAY
(REINFORCED CONCRETE)

HIGHWAY DEPARTMENT,
BOARD OF STATE ENGINEERS,
New Orleans, La.
Nov., 1917.

Approved: _____
State Highway En.