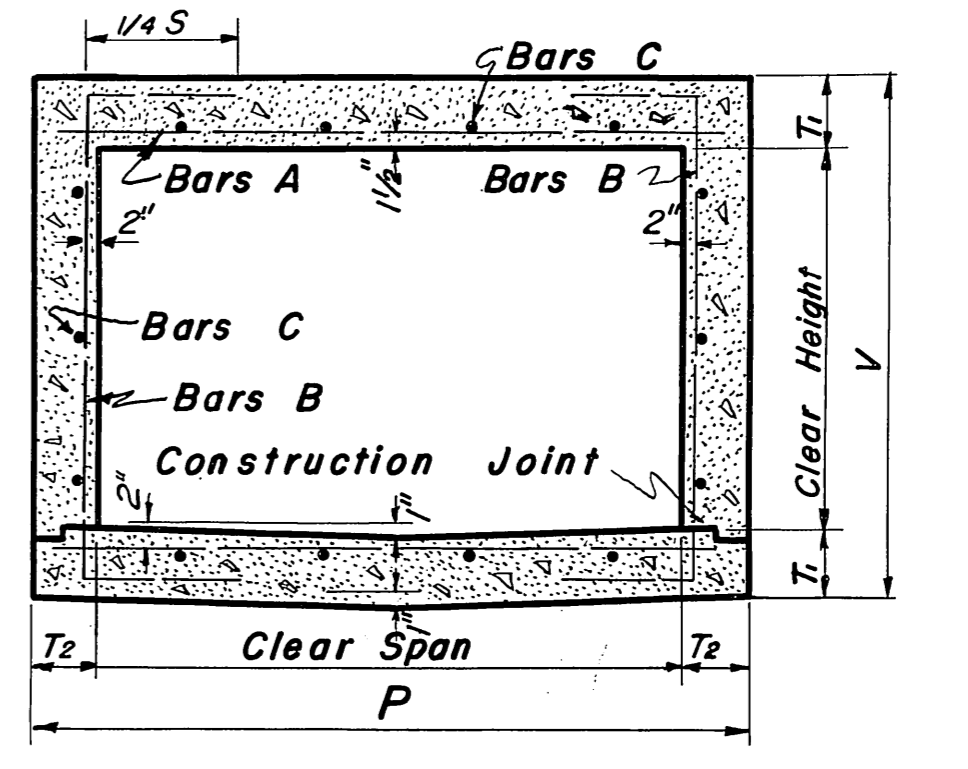
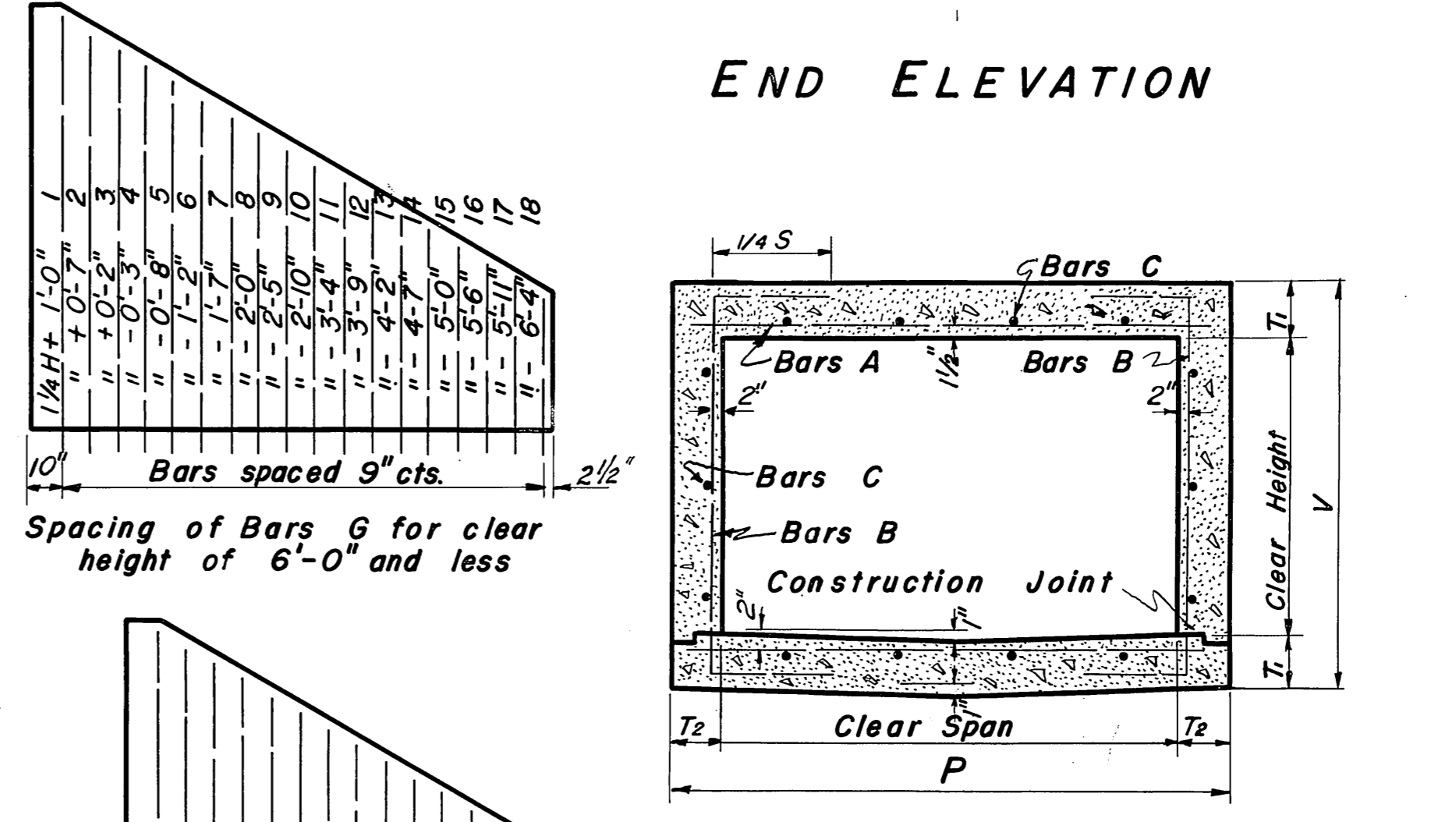
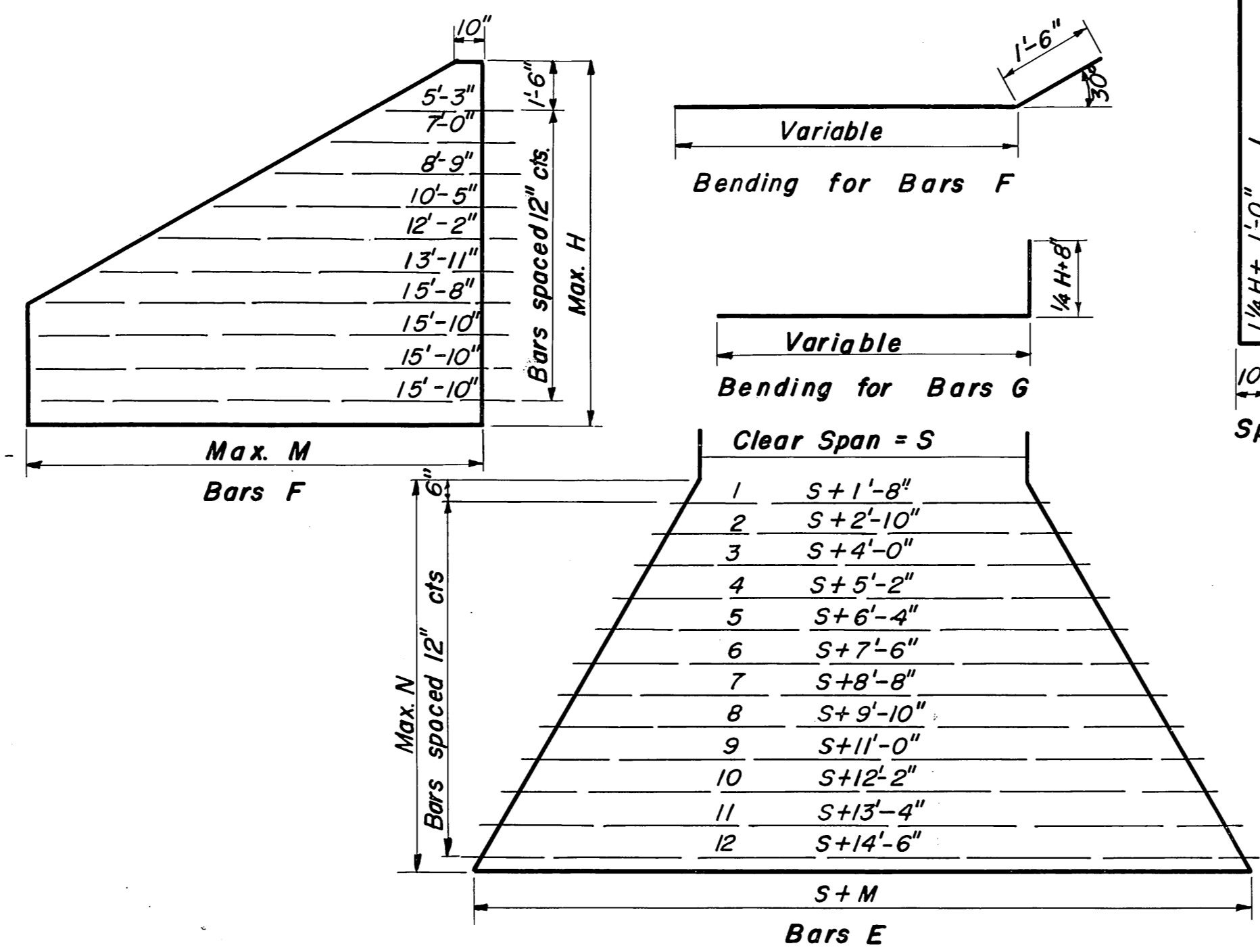
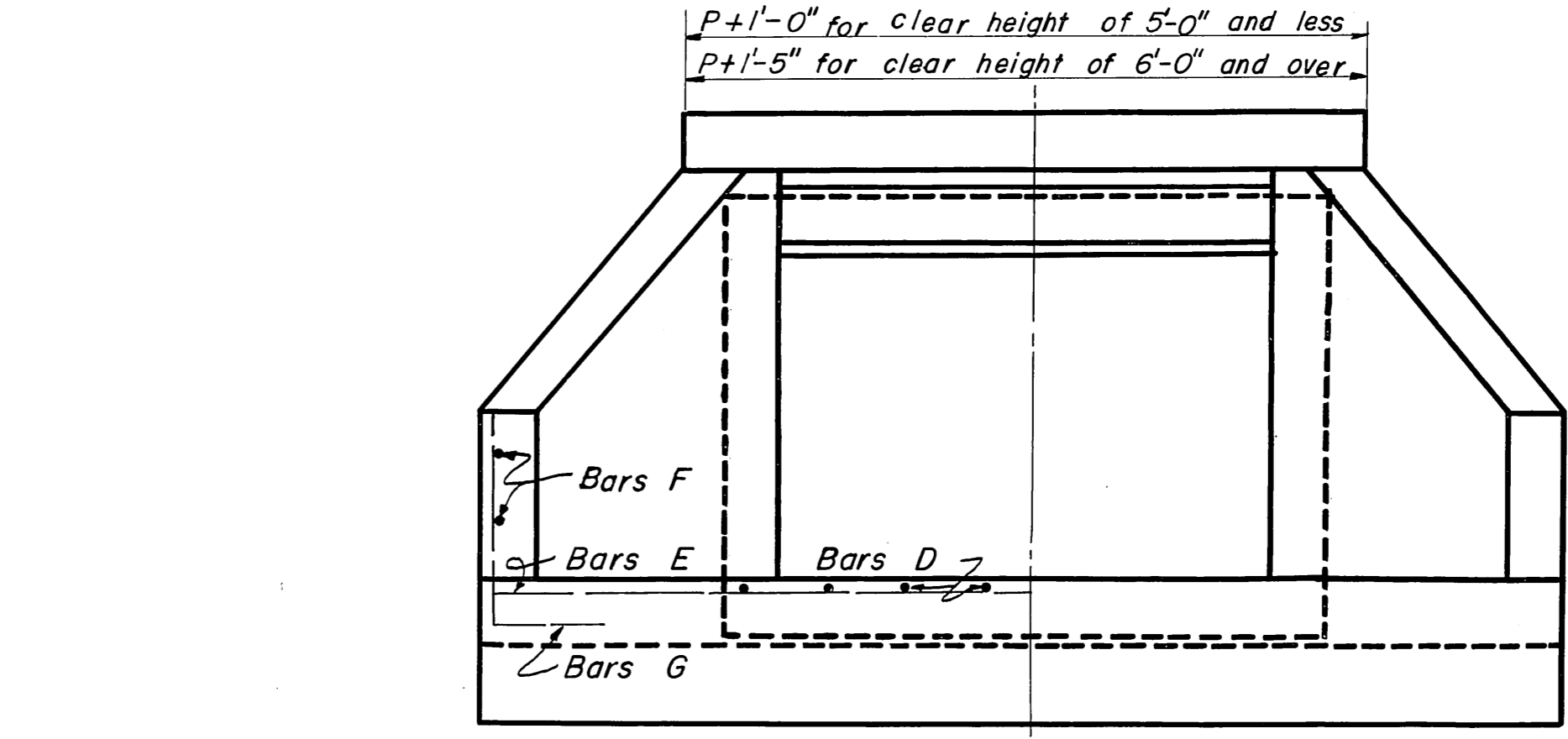
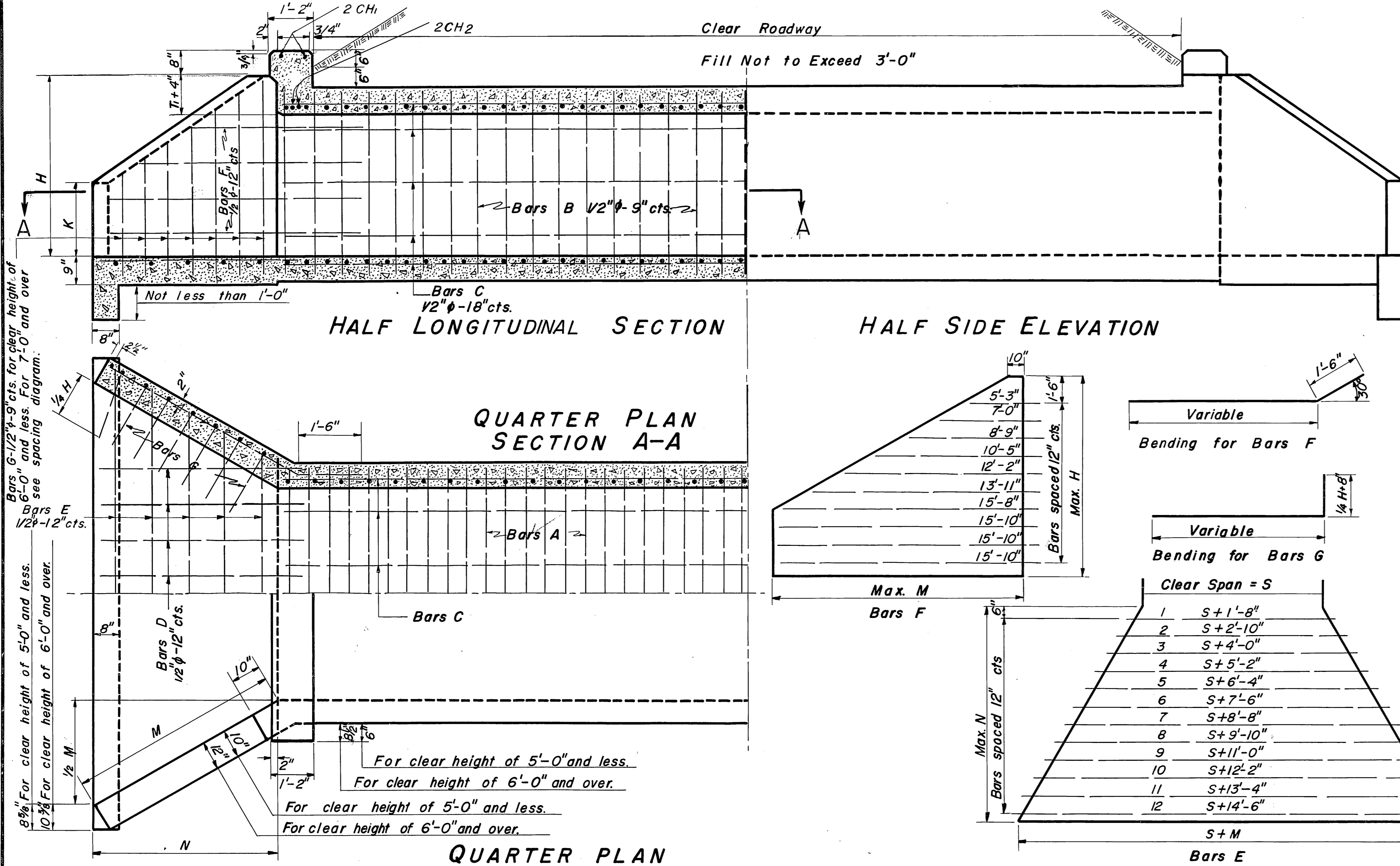


| FED. ROAD DIST. NO. | STATE | PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-----------|-----------|--------------|
| 6                   | OKLA. |           |           |              |



\* NOTE: The weight of the CH, & CH2 bars is included in the weight of the total quantities for 26' & 30' Rdy.

| DESIGN NO. | Clear Span Ft. | Clear Height Ft. | BARREL OF CULVERT |                |     |                   |          |            |            | TWO WINGS AND ONE APRON |                   |            |            | TOTAL QUANTITIES |           |             |          | DESIGN NO.            | Two Curbs Rein Steel Same Size As A Bars |                  |       |                  |       |       |       |       |    |         |        |
|------------|----------------|------------------|-------------------|----------------|-----|-------------------|----------|------------|------------|-------------------------|-------------------|------------|------------|------------------|-----------|-------------|----------|-----------------------|--|------------------|-------|------------------|-------|-------|-------|-------|----|---------|--------|
|            |                |                  | DIMENSIONS        |                |     | REINFORCING STEEL |          | QUANTITIES | DIMENSIONS |                         | REINFORCING STEEL |            | QUANTITIES | 26' ROADWAY      |           | 30' ROADWAY |          |                       | DESIGN NO.                               | A-CH             | A-CH2 |                  |       |       |       |       |    |         |        |
|            |                |                  | T <sub>1</sub>    | T <sub>2</sub> | V   | P                 | Bars - A | Bars - B   | Bars - C   | H                       | K                 | M          | N          | Bars - D         | Bars - E  | Bars - F    | Bars - G | Bars - G <sub>1</sub> | Steel                                    | Class A Concrete | Steel | Class A Concrete |       |       |       |       |    |         |        |
| 1          | 2              | 2'-0"            | 4.0               | 6"             | 6"  | 3'-0"             | 2'-8"    | 2'-8"      | 2'-8"      | 2'-10"                  | 1'-6"             | 3'-2"      | 2'-9"      | 4                | 3'-2"     | 3           | 2        | 2                     | 54                                       | .87              | .31   | .163             | 667   | 7.96  | 744   | 8.30  | 1  | 3'-8"   | 2'-8"  |
| 2          | 2              | 2'-0"            | 6.0               | 6"             | 6"  | 3'-0"             | 3'-8"    | 3'-8"      | 3'-8"      | 22.97                   | 0.222             | 2'-10"     | 1'-6"      | 3'-2"            | 2'-9"     | 5           | 3'-2"    | 3                     | 58                                       | .95              | .40   | .188             | 782   | 8.89  | 874   | 9.78  | 2  | 4'-8"   | 3'-8"  |
| 3          | 3              | 2'-6"            | 7.5               | 6"             | 6"  | 3'-6"             | 3'-8"    | 3'-8"      | 3'-8"      | 23.88                   | 0.241             | 3'-4"      | 1'-2"      | 3'-10"           | 3'-4"     | 5           | 3'-9"    | 4                     | 69                                       | 1.25             | .40   | .204             | 830   | 10.06 | 925   | 11.02 | 3  | 4'-8"   | 3'-8"  |
| 4          | 3              | 3'-0"            | 9.0               | 6"             | 6"  | 4'-0"             | 4'-0"    | 3'-8"      | 3'-8"      | 26.14                   | 0.259             | 3'-10"     | 1'-9"      | 4'-6"            | 3'-10"    | 5           | 4'-4"    | 4                     | 91                                       | 1.60             | .40   | .221             | 937   | 11.29 | 1,041 | 12.33 | 4  | 4'-8"   | 3'-8"  |
| 5          | 4              | 2'-0"            | 8.0               | 7"             | 6"  | 3'-2"             | 4'-0"    | 4'-8"      | 3'-8"      | 30.40                   | 0.290             | 2'-11"     | 1'-7"      | 3'-2"            | 2'-9"     | 6           | 3'-2"    | 3                     | 63                                       | 1.04             | .48   | .213             | 1,021 | 11.11 | 1,143 | 12.27 | 5  | 5'-8"   | 4'-8"  |
| 6          | 4              | 2'-6"            | 10.0              | 7"             | 6"  | 3'-8"             | 4'-8"    | 4'-8"      | 3'-8"      | 31.31                   | 0.308             | 3'-5"      | 1'-8"      | 3'-10"           | 3'-4"     | 6           | 3'-9"    | 3                     | 74                                       | 1.37             | .48   | .229             | 1,069 | 12.30 | 1,194 | 13.53 | 6  | 5'-8"   | 4'-8"  |
| 7          | 4              | 3'-0"            | 12.0              | 7"             | 6"  | 4'-2"             | 5'-0"    | 4'-8"      | 3'-8"      | 33.58                   | 0.327             | 3'-11"     | 1'-10"     | 4'-6"            | 3'-10"    | 6           | 4'-4"    | 4                     | 97                                       | 1.73             | .48   | .246             | 1,178 | 13.59 | 1,318 | 14.90 | 7  | 5'-8"   | 4'-8"  |
| 8          | 4              | 4'-0"            | 16.0              | 7"             | 8"  | 5'-2"             | 5'-4"    | 5'-0"      | 3'-8"      | 36.45                   | 0.428             | 4'-11"     | 2'-0"      | 5'-10"           | 5'-0"     | 6           | 5'-6"    | 5                     | 144                                      | 2.51             | .50   | .278             | 1,356 | 18.06 | 1,501 | 19.77 | 8  | 6'-0"   | 5'-0"  |
| 9          | 5              | 2'-0"            | 10.0              | 7 1/2"         | 6"  | 3'-3"             | 6'-0"    | 5'-8"      | 3'-8"      | 37.20                   | 0.352             | 2'-11 1/2" | 1'-8"      | 3'-2"            | 2'-9"     | 7           | 3'-2"    | 3                     | 67                                       | 1.13             | .56   | .237             | 1,228 | 13.15 | 1,376 | 14.56 | 9  | 6'-8"   | 5'-8"  |
| 10         | 5              | 3'-0"            | 15.0              | 7 1/2"         | 6"  | 4'-3"             | 6'-0"    | 5'-8"      | 3'-8"      | 40.38                   | 0.389             | 3'-11 1/2" | 1'-10"     | 4'-6"            | 3'-10"    | 7           | 4'-4"    | 4                     | 103                                      | 1.85             | .56   | .270             | 1,383 | 15.69 | 1,550 | 17.25 | 10 | 6'-8"   | 5'-8"  |
| 11         | 5              | 4'-0"            | 20.0              | 7 1/2"         | 8"  | 5'-3"             | 6'-0"    | 6'-0"      | 3'-8"      | 43.32                   | 0.490             | 4'-11 1/2" | 2'-1"      | 5'-10"           | 5'-0"     | 7           | 5'-6"    | 5                     | 151                                      | 2.67             | .58   | .303             | 1,570 | 20.25 | 1,743 | 22.21 | 11 | 7'-0"   | 6'-0"  |
| 12         | 5              | 5'-0"            | 25.0              | 7 1/2"         | 8"  | 6'-3"             | 6'-0"    | 6'-4"      | 3'-8"      | 47.62                   | 0.617             | 5'-11 1/2" | 2'-5"      | 7'-2"            | 6'-2"     | 7           | 6'-6"    | 6                     | 207                                      | 3.65             | .61   | .336             | 1,805 | 25.86 | 1,996 | 28.33 | 12 | 7'-4"   | 6'-4"  |
| 13         | 6              | 6'-0"            | 30.0              | 7 1/2"         | 10" | 7'-3"             | 6'-8"    | 6'-4"      | 3'-8"      | 50.79                   | 0.679             | 6'-11 1/2" | 2'-6"      | 8'-6"            | 7'-4"     | 7           | 7'-9"    | 7                     | 270                                      | 5.37             | .64   | .376             | 2,027 | 31.14 | 2,225 | 33.86 | 13 | 7'-9"   | 6'-4"  |
| 14         | 6              | 3'-0"            | 12.0              | 8 1/2"         | 6"  | 3'-5"             | 7'-4"    | 6'-8"      | 3'-8"      | 45.28                   | 0.441             | 3'-10 1/2" | 1'-8"      | 3'-2"            | 2'-9"     | 8           | 3'-2"    | 3                     | 72                                       | 1.22             | .64   | .262             | 1,473 | 15.95 | 1,654 | 17.72 | 14 | 7'-8"   | 6'-8"  |
| 15         | 6              | 4'-0"            | 18.0              | 8 1/2"         | 8"  | 4'-5"             | 7'-4"    | 7'-0"      | 3'-8"      | 49.76                   | 0.533             | 4'-10 1/2" | 1'-11"     | 4'-6"            | 3'-10"    | 8           | 4'-4"    | 4                     | 109                                      | 1.94             | .67   | .295             | 1,675 | 20.06 | 1,874 | 22.20 | 15 | 8'-0"   | 7'-0"  |
| 16         | 6              | 4'-0"            | 24.0              | 8 1/2"         | 8"  | 5'-5"             | 7'-4"    | 7'-0"      | 3'-8"      | 51.57                   | 0.582             | 5'-0"      | 2'-1"      | 5'-10"           | 5'-0"     | 8           | 5'-6"    | 5                     | 159                                      | 2.83             | .67   | .328             | 1,826 | 23.28 | 2,032 | 25.61 | 16 | 8'-0"   | 7'-0"  |
| 17         | 6              | 5'-0"            | 30.0              | 8 1/2"         | 10" | 6'-5"             | 7'-4"    | 7'-0"      | 3'-8"      | 56.04                   | 0.711             | 6'-0 1/2"  | 2'-1"      | 6'-2"            | 5'-5"     | 8           | 6'-8"    | 6                     | 217                                      | 3.86             | .69   | .361             | 2,069 | 29.04 | 2,293 | 31.88 | 17 | 8'-4"   | 7'-4"  |
| 18         | 6              | 6'-0"            | 36.0              | 8 1/2"         | 10" | 7'-5"             | 7'-8"    | 7'-0"      | 3'-8"      | 59.22                   | 0.772             | 7'-0 1/2"  | 2'-8"      | 6'-6"            | 7'-4"     | 8           | 7'-9"    | 7                     | 281                                      | 5.65             | .72   | .401             | 2,288 | 34.44 | 2,525 | 37.53 | 18 | 8'-9"   | 7'-4"  |
| 19         | 7              | 3'-0"            | 24.0              | 10"            | 8"  | 4'-8"             | 9'-4"    | 8'-4"      | 3'-8"      | 74.24                   | 0.724             | 4'-2"      | 2'-1"      | 4'-6"            | 3'-10"    | 10          | 4'-4"    | 4                     | 122                                      | 2.20             | .83   | .344             | 2,439 | 26.19 | 2,736 | 29.09 | 19 | 10'-0"  | 9'-0"  |
| 20         | 7              | 4'-0"            | 32.0              | 10"            | 8"  | 5'-8"             | 9'-4"    | 9'-4"      | 3'-8"      | 76.06                   | 0.773             | 5'-2"      | 2'-3"      | 5'-10"           | 5'-0"     | 10          | 5'-6"    | 5                     | 175                                      | 3.16             | .83   | .377             | 2,596 | 29.55 | 2,900 | 32.64 | 20 | 10'-0"  | 9'-0"  |
| 21         | 7              | 5'-0"            | 40.0              | 10"            | 8"  | 6'-8"             | 9'-4"    | 9'-4"      | 3'-8"      | 80.96                   | 0.905             | 5'-2"      | 2'-6"      | 6'-2"            | 6'-2"     | 10          | 6'-8"    | 6                     | 236                                      | 4.25             | .85   | .410             | 2,859 | 35.51 | 3,183 | 39.13 | 21 | 10'-4"  | 9'-4"  |
| 22         | 7              | 6'-0"            | 48.0              | 10"            | 10" | 7'-8"             | 9'-4"    | 9'-4"      | 3'-8"      | 84.14                   | 0.967             | 7'-2"      | 2'-9"      | 8'-2"            | 7'-4"     | 10          | 7'-9"    | 7                     | 304                                      | 6.13             | .88   | .450             | 3,086 | 41.14 | 3,422 | 44.98 | 22 | 10'-8"  | 9'-4"  |
| 23         | 8              | 7'-0"            | 56.0              | 10"            | 10" | 8'-8"             | 9'-4"    | 9'-4"      | 3'-8"      | 85.95                   | 1.028             | 8'-2"      | 3'-0"      | 8'-6"            | 8'-6"     | 10          | 8'-9"    | 8                     | 384                                      | 7.90             | .88   | .483             | 3,519 | 46.03 | 3,862 | 50.14 | 23 | 10'-9"  | 9'-4"  |
| 24         | 8              | 8'-0"            | 64.0              | 10"            | 11" | 9'-8"             | 9'-4"    | 9'-6"      | 3'-8"      | 89.99                   | 1.150             | 9'-2"      | 3'-2"      | 11'-2"           | 9'-8"     | 10          | 10'-11"  | 10                    | 596                                      | 9.39             | .89   | .516             | 3,836 | 52.90 | 4,196 | 57.50 | 24 | 10'-11" | 9'-4"  |
| 25         | 9              | 3'-0"            | 30.0              | 11"            | 8"  | 4'-10"            | 11'-4"   | 11'-0"     | 3'-8"      | 97.70                   | 0.917             | 4'-3"      | 2'-2"      | 4'-6"            | 3'-10"    | 12          | 4'-4"    | 4                     | 134                                      | 2.44             | .99   | .394             | 3,144 | 32.33 | 3,534 | 36.00 | 25 | 12'-0"  | 11'-0" |
| 26         | 9              | 4'-0"            | 40.0              | 11"            | 8"  | 5'-10"            | 11'-4"   | 11'-0"     | 3'-8"      | 99.52                   | 0.967             | 5'-3"      | 2'-4"      | 5'-10"           | 5'-0"     | 12          | 5'-8"    | 5                     | 190                                      | 3.47             | .99   | .427             | 3,307 | 35.86 | 3,705 | 39.73 | 26 | 12'-0"  | 11'-0" |
| 27         | 9              | 5'-0"            | 50.0              | 11"            | 10" | 6'-10"            | 11'-8"   | 11'-4"     | 3'-8"      | 104.71                  | 1.101             | 6'-3"      | 2'-7"      | 7'-2"            | 6'-2 1/2" | 12          | 6'-8"    | 6                     | 254                                      | 4.63             | 1.02  | .460             | 3,584 | 42.03 | 4,008 | 46.43 | 27 | 12'-4"  | 11'-4" |
| 28         | 9              | 6'-0"            | 60.0              | 11"            | 10" | 7'-10"            | 11'-8"   | 11'-4"     | 3'-8"      | 107.89                  | 1.163             | 7'-3"      | 2'-8"      | 8'-6"            | 7'-4 1/2" | 12          | 7'-9"    | 7                     | 325                                      | 6.59             | 1.05  | .500             | 3,817 | 47.79 | 4,248 | 52.45 | 28 | 12'-8"  | 11'-4" |
| 29         | 10             | 7'-0"            | 70.0              | 11"            | 10" | 8'-10"            | 11'-8"   | 11'-4"     | 3'-8"      | 109.70                  | 1.224             | 8'-3"      | 3'-1"      | 9'-4"            | 8'-6"     | 12          | 8'-11"   | 9                     | 408                                      | 8.32             | 1.05  | .533             | 4,264 | 52.85 | 4,702 | 57.74 | 29 | 12'-9"  | 11'-4" |
| 30         | 10             | 8'-0"            | 80.0              | 11"            | 11" | 9'-10"            | 11'-10"  | 11'-6"     | 3'-8"      | 113.89                  | 1.347             | 9'-3"      | 3'-3"      | 10'-2"           | 9'-8"     | 12          | 10'-11"  | 10                    | 508                                      | 9.99             | 1.06  | .566             | 4,591 | 59.89 | 5,046 | 65.28 | 30 | 12'-11" | 11'-6" |
| 31         | 10             | 9'-0"            | 90.0              | 11"            | 12" | 10'-10"           | 12'-0"   | 11'-6"     | 3'-8"      | 118.08                  | 1.482             | 10'-3"     | 3'-6"      | 12'-6"           | 10'-10"   | 13          | 11'-3"   | 11                    | 627                                      | 11.95            | 1.07  | .599             | 4,972 | 67.66 | 5,445 | 73.59 | 31 | 13'-11" | 11'-8" |
| 32         | 10             | 10'-0"           | 100.0             | 11"            | 12" | 11'-10"           | 12'-0"   | 11'-6"     | 3'-8"      | 119.89                  | 1.556             | 11'-3"     | 3'-9"      | 13'-10"          | 11'-11"   | 13          | 12'-5"   | 12                    | 748                                      | 14.07            | 1.07  | .631             | 5,271 | 74.04 | 5,750 | 80.26 | 32 | 13'-11" | 11'-8" |
| 33         | 5              | 7'-0"            | 35.0              | 7 1/2"         | 10" | 8'-3"             | 9'-4"    | 9'-4"      | 3'-8"      | 52.60                   | .741              | 7'-11 1/2" | 2'-9"      | 9'-4"            | 8'-6"     | 7           | 8'-11"   | 7                     | 246                                      | 4.50             | .64   | .409             | 2,433 | 35.83 | 2,643 | 38.79 | 33 | 7'-9"   | 6'-4"  |

### GENERAL NOTES

Quantities shown for reinforcing steel shall be reduced by 1 1/2% (.015) to comply with approved C.R.S.I. weights per foot for reinforcing bars.

All reinforcing steel shall be deformed round bars. The design and table are based upon net areas of bars as follows: 1/2" phi = 0.1963 sq. in., 3/8" phi = 0.3068 sq. in., 3/4" phi = 0.442 sq. in. Other sizes may be used provided they are spaced so as to give as much net sectional area per ft. width of slab. Plans showing such changed sizes and spacing must be approved.

All exposed surfaces to have carborundum finish and this shall be included in price bid per cu. yd. for concrete.

### DESIGN DATA

|                           |          |   |
|---------------------------|----------|---|
| Conc. slab 6' span 8 1/2" | 106 lbs. | L.L.M. = 909 X 40 1/4" = 36590 in. lbs.       |
| Dirt fill                 | 100 "    | I = 30% L.L = 10980 "                         |
| Paving 6"                 | 75 "     | D.L.M. = 1/8 WL^2 = 1/8 X 281 X 67^2 = 9000 " |
|                           | 281 "    |   |

L.L. = 1818  
909 " 6'-8 1/2" 909 " 5.5 10,000  
1,818

All exposed edges shall have a 3/4" chamfer.

### REVISIONS

| NO. | DESCRIPTION           | BY     | DATE    | ITEM   | BY | DATE |
|-----|-----------------------|--------|---------|--------|----|------|
| 1   | Retraced (No Changes) | KCC    | 5-14-58 | DESIGN |    |      |
| 2   | Revised               | J.E.B. | 1/17-59 | DETAIL |    |      |
| 3   | Note for Reinf. wts.  | J.E.B. | 5-27-63 | TRACED |    |      |

### STANDARD CONCRETE BOX CULVERTS SPANS 2 TO 10 FT FOR FILLS NOT OVER 3 FT.