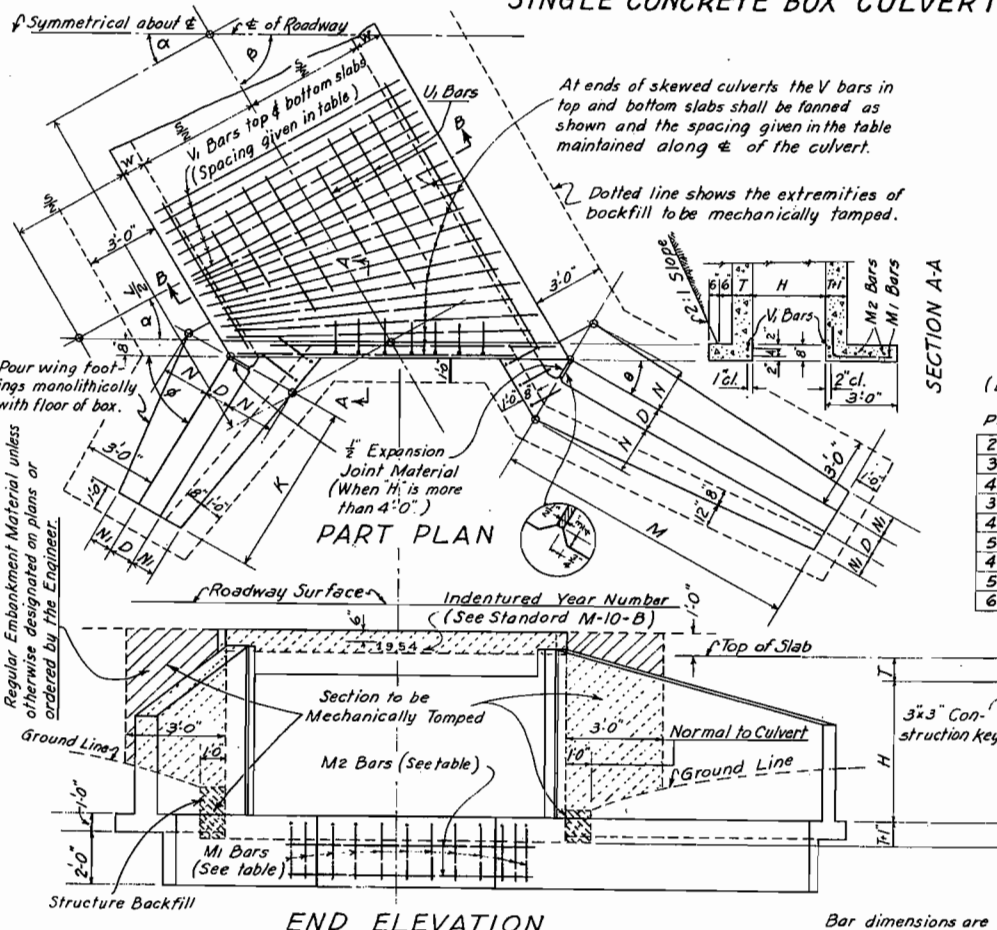


FED. ROAD DISTRICT 1N SHEET NO. 34 TOTAL SHEETS
9 COLO. 002-2(40)

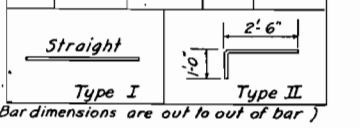
Dimensions & Quantities (see Standard M-50-AW for Wings)

Table with columns: Height of Fill Allowed, Type, Span, Height, Slab, Wall, Bar size & spacing, No. bars required, Quantities for one lin. ft. of box, Quantities for two headwalls. Includes rows for types 2A through 14B.



Bar List for Culvert & Headwalls (See Standard M-50-AW for Wings)

Table with columns: Mark, Size, No. Req'd., Type, Length. Lists bars V1, W1, U1, M1, M2 with their respective specifications.

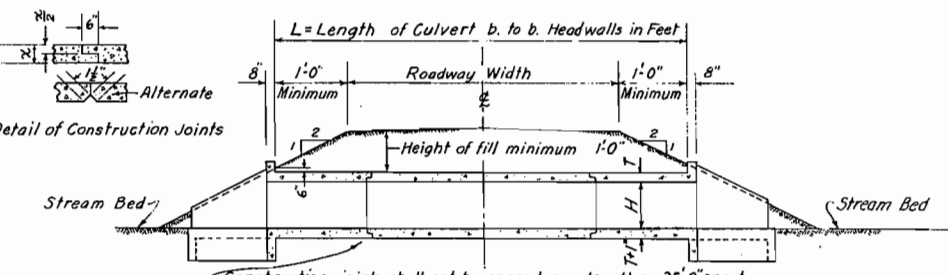


Possible Combinations (Span & Height)

Table listing possible combinations of span and height for single concrete box culverts, such as 2'x2', 3'x2', 4'x2', etc.

STANDARD M-50-A

Use in conjunction with Standard M-50-AW



Construction joints shall not be spaced greater than 35'-0" apart.

Dimensions & Quantities (see Standard M-50-AW for Wings)

Table with columns: Height of fill allowed, Type, Span, Height, Slab, Wall, Bar size & spacing, No. bars required, Quantities for one lin. ft. of box, Quantities for two headwalls. Includes rows for types 10A through 14B.

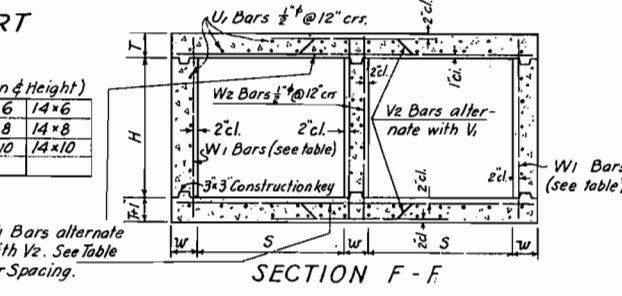
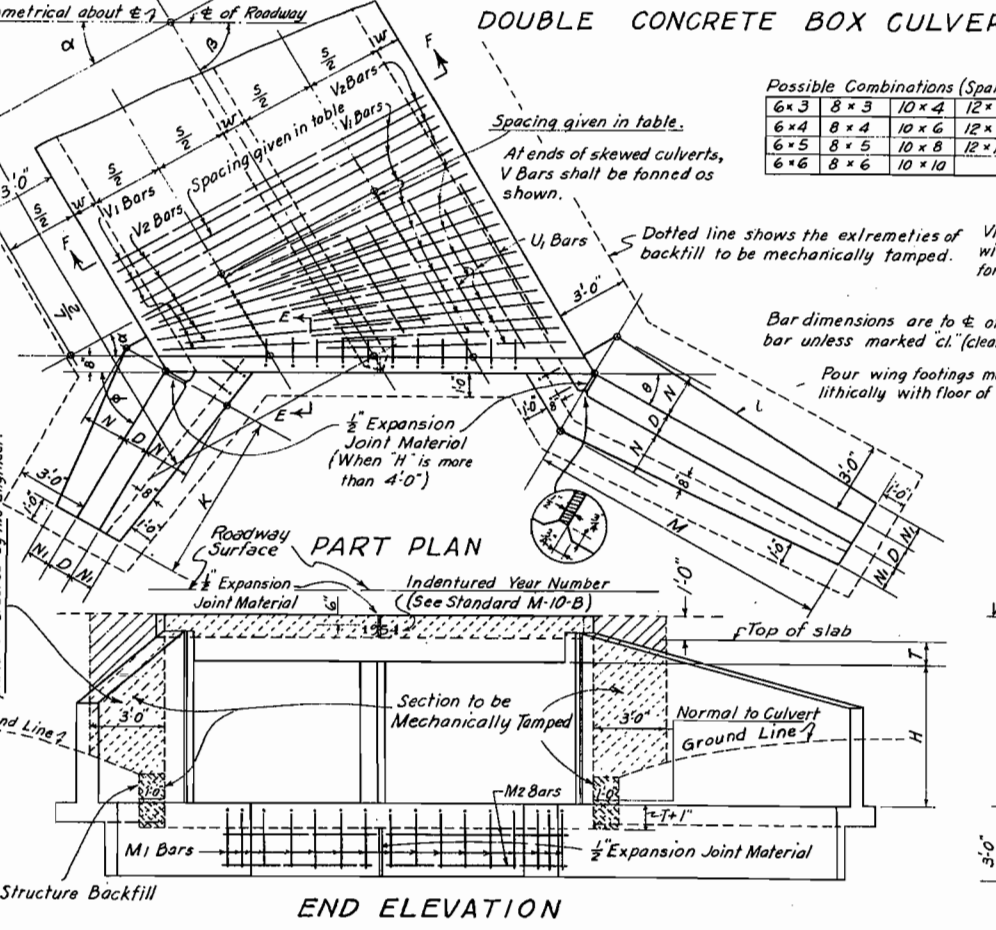
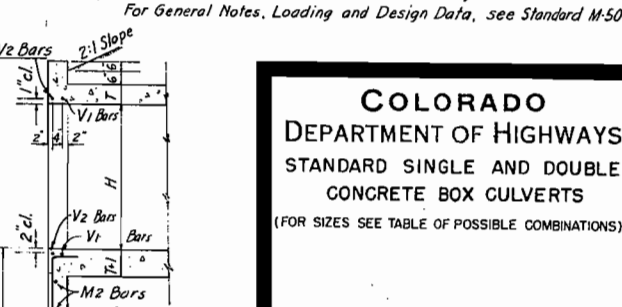


Table with columns: Mark, Size, Number Required, Type, L, Total Length. Lists bars V1, V2, W1, W2, U1, U2, M1, M2 with their respective specifications.



COLORADO DEPARTMENT OF HIGHWAYS STANDARD SINGLE AND DOUBLE CONCRETE BOX CULVERTS (FOR SIZES SEE TABLE OF POSSIBLE COMBINATIONS) Designed by: W.W.D. Approved by: J.L. Kowalk. Made by: W.W.D. Bridge Engineer. Checked by: T.J.M. Date: Aug. 30, 1954.

Quantities for one culvert shall be (quantity for one lin. ft. of box times L) plus (quantity for two headwalls) plus (quantities for four wings). Note: This design not to be used when height of fill exceeds the allowed amount tabulated.

STANDARD M-50-AW

Table with project information: FED. ROAD DIV. NO. 9, DISTRICT 10, SHEET NO. 35, TOTAL SHEETS.

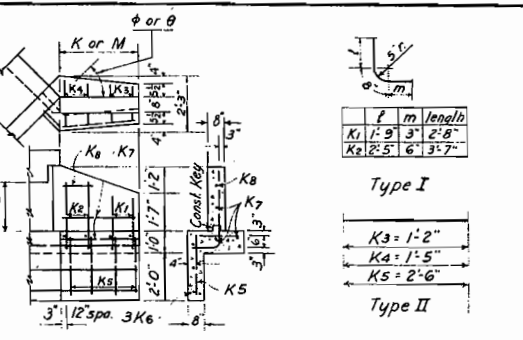
Use in conjunction with Standard M-50-A and M-55-A

Rev. 5-2-56, Deleted Finish Note, J.C.R.

TABLE SHOWING VALUES OF K AND M WHEN B AND H ARE GIVEN

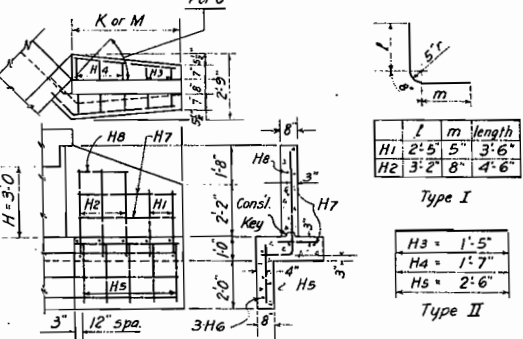
Table showing values of K and M for various angles (beta) and heights (H) from 2'-0" to 10'-0".

B EQUALS THE ANGLE BETWEEN C & OF CULVERT AND C OF ROADWAY. ALPHA EQUALS THE ANGLE BETWEEN C & OF CULVERT AND A NORMAL TO C OF ROADWAY.



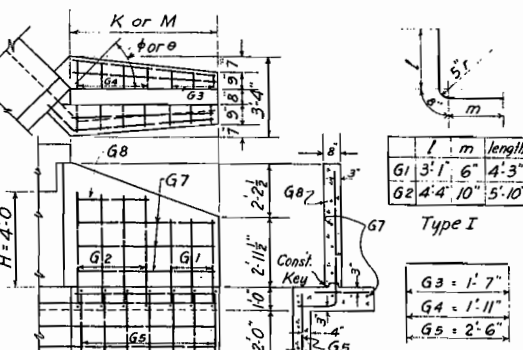
BAR LIST & QUANTITIES FOR ONE WING WHEN H=2'-0" table with columns for bar number, length, and quantities.

WING DETAIL WHEN H=2'-0"



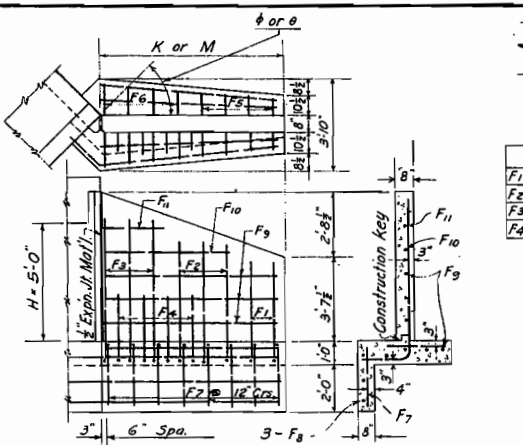
BAR LIST & QUANTITIES FOR ONE WING WHEN H=3'-0" table.

WING DETAIL WHEN H=3'-0"



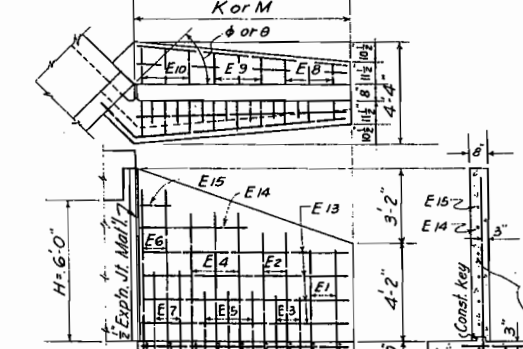
BAR LIST & QUANTITIES FOR ONE WING WHEN H=4'-0" table.

WING DETAIL WHEN H=4'-0"



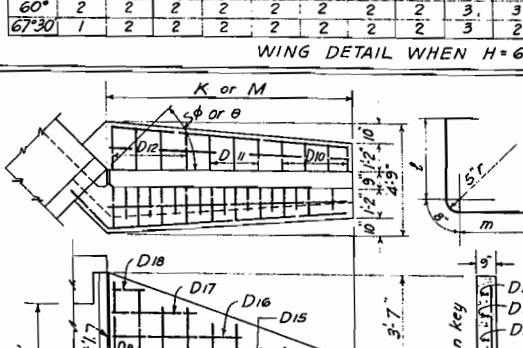
BAR LIST & QUANTITIES FOR ONE WING WHEN H=5'-0" table.

WING DETAIL WHEN H=5'-0"



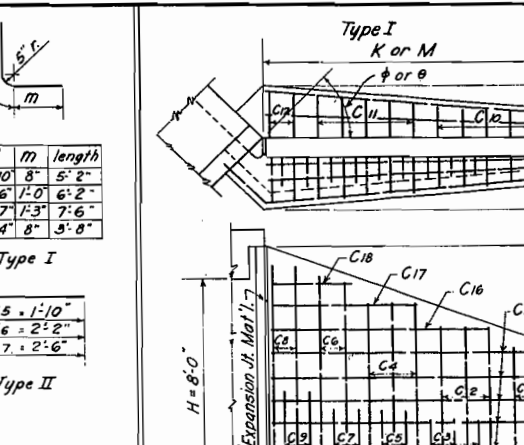
BAR LIST & QUANTITIES FOR ONE WING WHEN H=6'-0" table.

WING DETAIL WHEN H=6'-0"



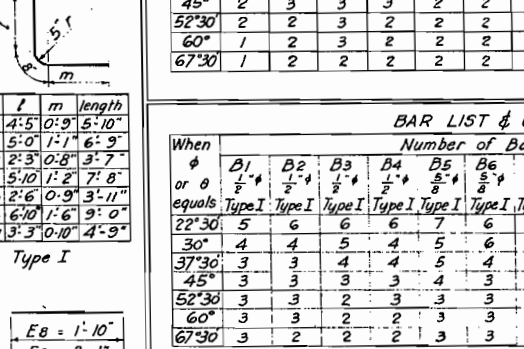
BAR LIST & QUANTITIES FOR ONE WING WHEN H=7'-0" table.

WING DETAIL WHEN H=7'-0"



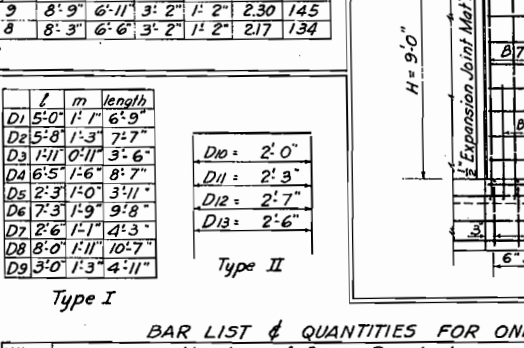
BAR LIST & QUANTITIES FOR ONE WING WHEN H=8'-0" table.

WING DETAIL WHEN H=8'-0"



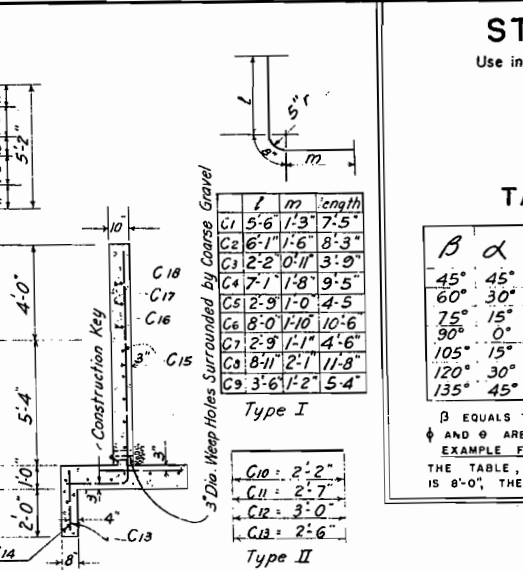
BAR LIST & QUANTITIES FOR ONE WING WHEN H=9'-0" table.

WING DETAIL WHEN H=9'-0"



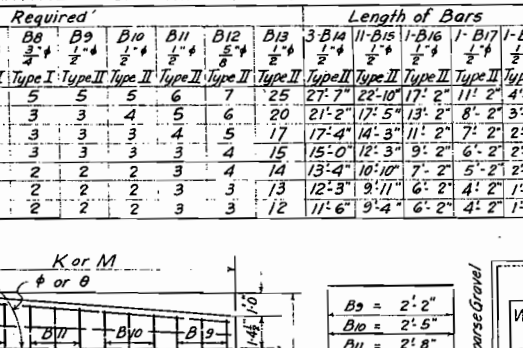
BAR LIST & QUANTITIES FOR ONE WING WHEN H=10'-0" table.

WING DETAIL WHEN H=10'-0"



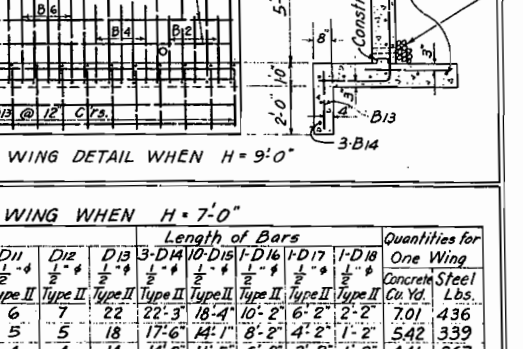
BAR LIST & QUANTITIES FOR ONE WING WHEN H=8'-0" table.

WING DETAIL WHEN H=8'-0"



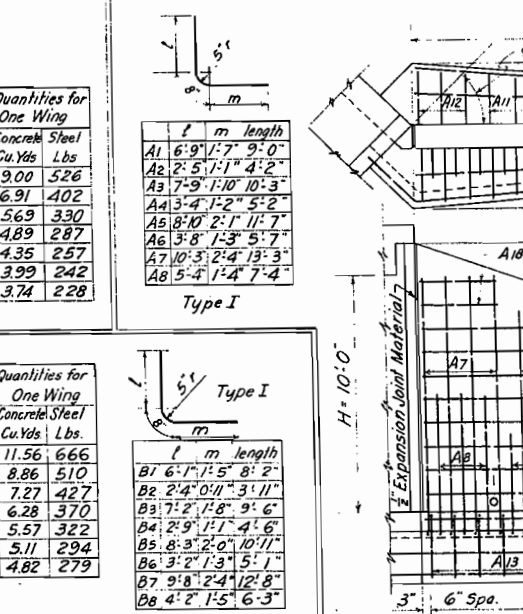
BAR LIST & QUANTITIES FOR ONE WING WHEN H=9'-0" table.

WING DETAIL WHEN H=9'-0"



BAR LIST & QUANTITIES FOR ONE WING WHEN H=9'-0" table.

WING DETAIL WHEN H=9'-0"



BAR LIST & QUANTITIES FOR ONE WING WHEN H=10'-0" table.

WING DETAIL WHEN H=10'-0"

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO DEPARTMENT OF HIGHWAYS APPLICABLE TO THE PROJECT.

LOADING DATA

LIVE LOAD - 4 A S H O (120-516-44)

DEAD LOAD - CONCRETE 150 POUNDS PER CUBIC FOOT. EARTH 84 POUNDS PER CUBIC FOOT.

DESIGNING DATA

AASHTO 1953 UNIT STRESS EXCEPT AS NOTED

Reinforcing Steel fs 20000 lbs. per sq. in.

Structural Steel fs 18000 lbs. per sq. in.

fc 1000 lbs. per sq. in.

n 10

COLORADO DEPARTMENT OF HIGHWAYS

WING WALLS FOR VARIOUS TYPES OF CONCRETE BOX CULVERTS

Designed by: W.W.D. Approved by: J.C.R.

Made by: W.W.D. Checked by: T.J.M. Date: Aug 30, 1954