

2 (' x ') CONCRETE BOX CULVERT

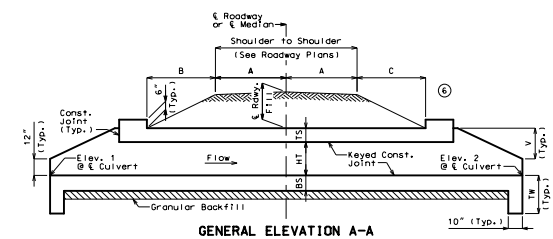
Layout Dimensions			
Var.	Equation	Dim.	Var.
S	---	x	TI
HT	---	x	A
TS	---	x	B
BS	---	x	C
TX	---	x	E
F	25 + 2TX + TI	(b)	x
G	2V		
H	HT + TS - 12"		
W	2A + B + C + 2E		
TW	Max(3'-4" or (BS + 12")		

Hydrologic Data			
Drainage Area	= ... mi ²		
Design Flood Frequency	= ... years		
Design Flood Discharge	= ... cfs		
Base Flood Elevation	= ...		
Base Flood Discharge	= ... cfs		
Estimated Backwater	= ... ft		
Outlet Velocity	= ... ft/s		
Roadway Overlapping			
Overlapping Flood Discharge	= ... cfs		
Overlapping Flood Frequency	= ... years		
Flood Elevation	= ...		

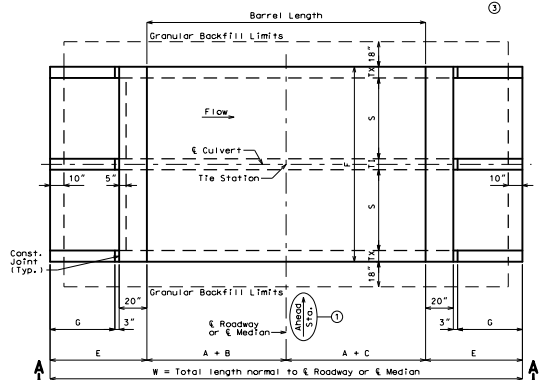
Elevations			
Upstream (Elev. 1)	=		
Downstream (Elev. 2)	=		
Pr. Gr. at Tie Sta.	=		

Fill Heights			
Row(s) at E. Culvert	=	ft	
Design (All units)	=	ft	

Estimated Quantities			
Class 4 Excavation	cu. yard	x	
Removal of Bridges	lump sum	1	
Class B-1 Concrete (Culverts-Bridge)	cu. yard	x	
Reinforcing Steel (Culverts-Bridge)	pound	x	



Construction joint key not shown for clarity, see standard plans for details.
 If any part of the barrel is exposed, the roadway fill shall be warped to provide 12 inches minimum cover. (Roadway Item)
 If unsuitable material is encountered, excavation of unsuitable material and furnishing and placing of granular backfill shall be in accordance with Sec 206.



PLAN OF LAYOUT DIMENSIONS

Note: This drawing is not to scale. Follow dimensions.

LOCATION SKETCH

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

DATE: 5/15/2015

PROJECT NO. BOX 1

ROUTE # FROM * TO *
 ABOUT * MILES * OF *
 TIE STA.

STO. 703.37
 STO. 703.40
 STO. 703.46
 STO. 703.47
 STO. 706.35

THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.

DATE PLOTTED: 5/15/2015

PROJECT NO. BOX 1

ROUTE # FROM * TO *
 ABOUT * MILES * OF *
 TIE STA.

STO. 703.37
 STO. 703.40
 STO. 703.46
 STO. 703.47
 STO. 706.35

Standard Drawing Guidance
 Do not show on plans. Turn off the Bridge Construction level to hide some details have been grouped together to allow easy substitution with alternate details. To edit grouped details, select them and press <Ctrl> U.

Head station is shown for streams flowing left to right. Arrow must be placed for streams that flow right to left.

Modify Estimated Quantities as required. Don't leave blank rows but leave space between quantities. Quantities and General Notes for at least one pay item to be added during construction. See Alternate Details for culvert extensions or if five items are required.

Add any required transverse joints proportionally spaced along the barrel. Label units and add actual lengths of units along the barrel.

Insert STD 703.60 when pipe inlets are required. Add pipe inlets to Plan of Layout Dimensions at appropriate locations and to Elevation A-A, if visible from elevation. Add inlet data or use tables.

For nonstandard culverts with only one design fill height, add supplemental reinforcement table.

No need to revise General Elevation A-A for dual roadways. In Fill Heights table add a lane designation after E Row and insert another row for the other lane.

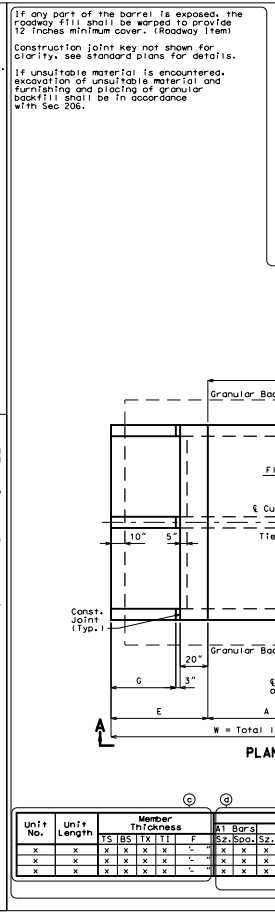
*** VARIABLE DESIGN FILL HEIGHTS ***

Select and delete the details grouped with the Fill Heights table. Select and move the alternate grouped details to drawing.

Place "See Member Thickness table" in the Equation column and place "Varies" in the Dim. column. If Dimension F varies place "Varies" in the Dim. column.

Remove blank rows. End units may have different design fill heights but both units need to have the same member thicknesses.

This portion of table required when design fill height exceeds limits of the standard plans or when culvert cell height or span is not standard. If only a portion of the units are nonstandard, fill out entire table using the values from the standard table where applicable. Unit F not required.



PLAN OF TRANSVERSE JOINTS AND STAGE CONSTRUCTION

Remove if not applicable.

ALTERNATE AND SUPPLEMENTAL DETAILS

Pipes With Same Diameter

Station	Offset	F.L. Elev.
xxxx.xx	xx.xx' XX	xxx.xx
xxxx.xx	xx.xx' XX	xxx.xx
xxxx.xx	xx.xx' XX	xxx.xx

Pipes With Different Diameters

Station	Offset	Di.	F.L. Elev.
xxxx.xx	xx.xx' XX	XX"	xxx.xx
xxxx.xx	xx.xx' XX	XX"	xxx.xx
xxxx.xx	xx.xx' XX	XX"	xxx.xx

Supplemental Reinforcement Table (Nonstandard Culverts with only one design fill height)

Top Slab Reinforcement		Bottom Slab Reinforcement		Wall Reinforcement	
A1 Bars	J3 Bars	K2 Bars	L2 Bars	M3 Bars	B1 Bars
Sz:Spa1	Sz:Spa1	Sz:Spa1	Sz:Spa1	Sz:Spa1	Sz:Spa1
x	x	x	x	x	x

Fill Heights

Row(s) at E. Culvert	Design (Units &)	Design (Units &)
	= ft	= ft

Estimated Quantities

Class 4 Excavation	cu. yard	x
Temporary Shoring	lump sum	1
Partial Removal of Culvert-Bridge Concrete	lump sum	1
Class B-1 Concrete (Culverts-Bridge)	cu. yard	x
Reinforcing Steel (Culverts-Bridge)	pound	x

Alternate Estimated Quantities for Culvert Extensions or when Five Items are Required

Corresponds to the border of the standard drawing for ease in moving alternate details (Snap to corner)

Alternate Plan of Transverse Joints

Remove if not applicable.