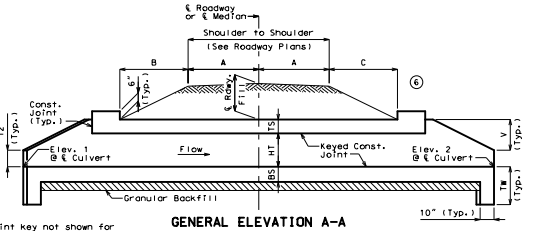
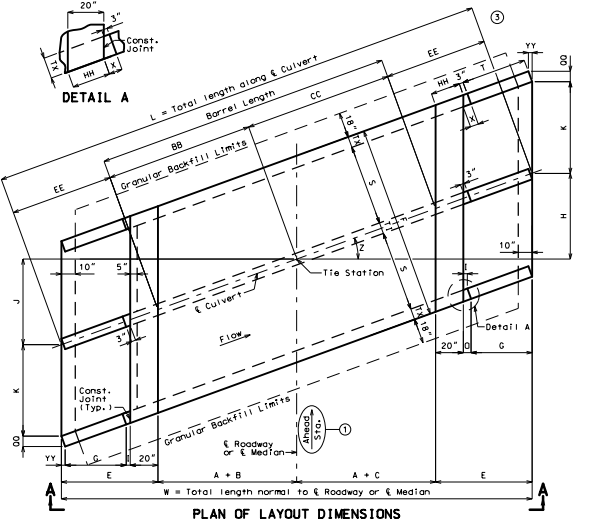
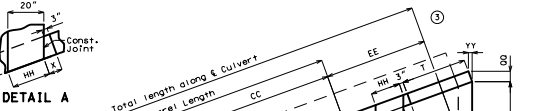


2 (' x ') CONCRETE BOX CULVERT



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.



Designed Detailed Checked

Layout Dimensions			
Var.	Equation	Dim.	Var.
S	F	2S + 2TX + 11	W
HT	G	2V	X
TS	H	(A + C + E)(tan Z)	Z
BS	I	3"cos Z	BB
TX	J	(A + B + E)(tan Z)	CC
TI	K	(S + T)(2tan Z)	EE
A	L	2EE + BB + CC	HH
B	D	I + YY	DD
C	T	G(sec Z)	YY
E	V	HT + TS - 12"	TW

Hydrologic Data		Elevations		Fill Heights	
Drainage Area = ... mi ²	Design Flood Frequency = ... years	Upstream Elev. (Elev. 1) =	Downstream Elev. (Elev. 2) =	E. Roadway or E. Culvert =	Design (All units) =
Design Flood Discharge = ... cfs	Design Flood (D.F.) Elevation =	Pr. Gr. at Tie Sta. =			
Base Flood (100-year) =	Base Flood Discharge = ... cfs	Estimated Backwater = ... ft	Outlet Velocity = ... ft/s	Roadway Overlapping	Overlapping Flood Discharge = ... cfs
Overlapping Flood Frequency = ... years	Overlapping Flood Elevation =				

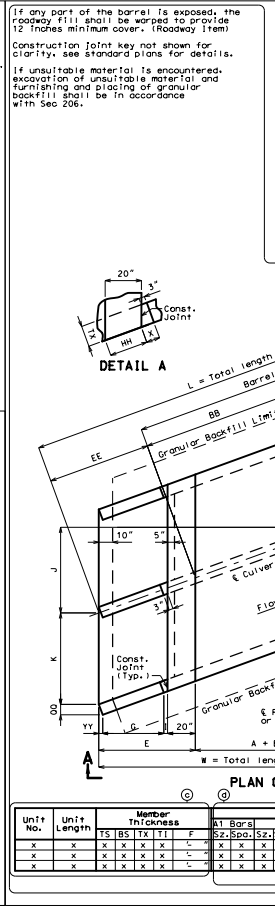
Estimated Quantities		
	Final	
Class 4 Excavation	cu. yard	x
Removal of Bridges	lump sum	1
Class B-1 Concrete (Culverts-Bridge)	cu. yard	x
Reinforcing Steel (Culverts-Bridge)	pond	x

General Notes:
Design Specifications: 2010 ASDOT LRB Bridge Design Specifications and 2010 Interim Revisions
Design Loadings: Vehicular = HS-20 minus lane load, Earth = 120 lb/cf Equivalent Fluid Pressure = 30 lb/cf (min.), 60 lb/cf (max.)
Design Unit Stresses: Class B-1 Concrete (Box Culvert) f'c = 4,000 psi; Reinforcing Steel (Grade 60) fy = 60,000 psi
Miscellaneous: MODOT Construction personnel will indicate the type of box culvert constructed; Precast Concrete Box used; Cast-in-Place Concrete Box used
When alternate precast concrete box sections are used, the minimum distance from inside face of headwall to precast sections measured along the shortest wall shall be 3 feet. Reinforcement and dimensions for wings and headwalls shall be in accordance with Missouri Standard Plans.
Channel bottom shall be graded within the right of way for transition of channel bed to culvert openings. Channel banks shall be tapered to match culvert openings. (Roadway Item)
Traffic Handling: Structure to be closed during construction. Traffic to be maintained on during construction. See roadway plans for traffic control.
B.M.

CULVERT-BRIDGE: ROUTE * OVER *
ROUTE * FROM * TO *
ABOUT * MILES * OF *
TIE STA.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
MO DOT
CONTRACT NO. BOX 3
JOB NO. ...
PROJECT NO. ...
DATE: 5/15/2015

Standard Drawing Guidance
(Do not show on plans. Turn off the Bridge Construction level to rise)
Some details have been grouped together to allow easy substitution with alternate details. To edit grouped details, select them and press <Ctrl> U.
Ahead station is shown for streams flowing left to right. Arrow must be flipped for streams that flow right to left.
Modify Estimated Quantities as Required. Don't leave blank rows but leave space between Estimated 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 barrel. Label units and add actual lengths of units along the barrel.
Insert STD 703.40 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 using notes where space allows, 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. Omit if not required.



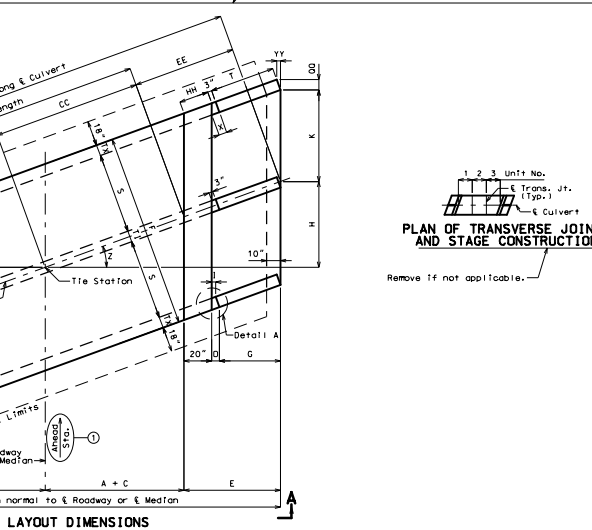
Unit No.	Unit Length	Member Thickness	Top Slab Reinforcement						Bottom Slab Reinforcement						Wall Reinforcement	
			A1 Bars	J3 Bars	H1 Bars	H2 Bars	A2 Bars	J4 Bars	H3 Bars	H4 Bars	B1 Bars	B2 Bars				
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

XX" Pipe Inlet Data

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

Pipes With Different Diameters

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



Fill Heights
E. Roadway or E. Culvert = ft
Design (Units 1 & 1) = ft
Design (Units 2 & 1) = ft
Design (Units 3 & 1) = ft

Estimated Quantities

	Final	
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)	pond	x

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

Alternate Plan of Transverse Joints