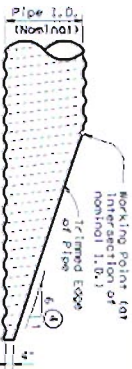
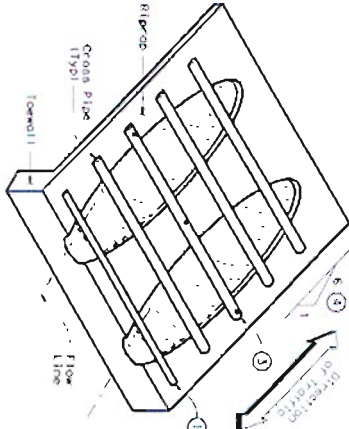


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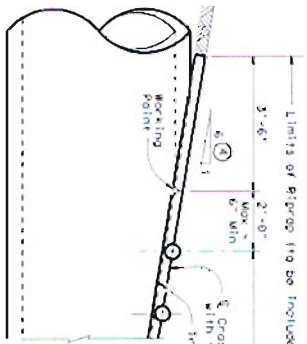


SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing Corrugated Metal Pipe Culvert.)
(Details of Concrete Pipe Culvert are similar.)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

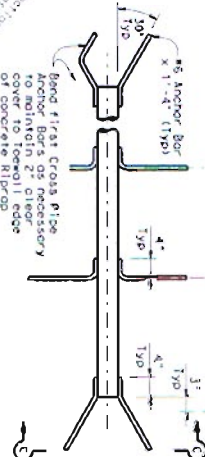


SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

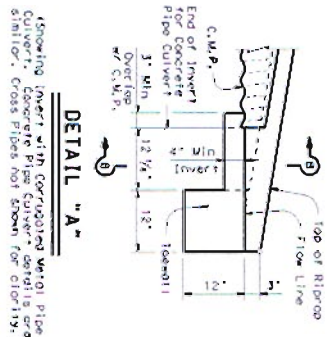
(Showing Concrete Pipe Culvert.)
(Details of Corrugated Metal Pipe Culvert are similar.)



PIPE W/ BOLTED ANCHOR

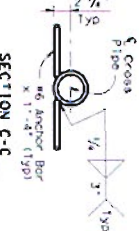


DETAIL "A"



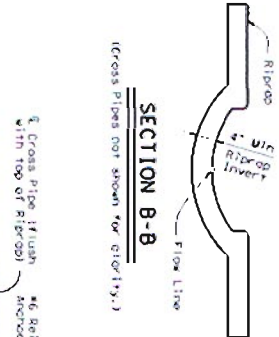
(Showing Invert of Corrugated Metal Pipe Culvert.)
(Cross Pipes not shown for clarity.)

PIPE W/ ANCHOR BARS

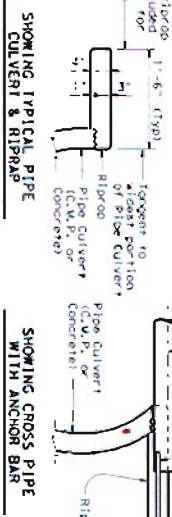


CROSS PIPE DETAILS

SECTION B-B

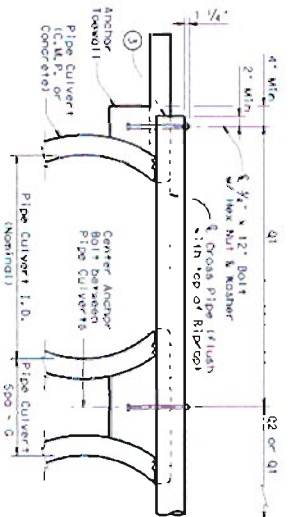


(Cross Pipes not shown for clarity.)

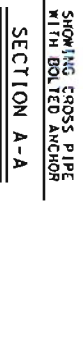


SHOWING TYPICAL PIPE CULVERT & RIBCAP

SHOWING CROSS PIPE WITH ANCHOR BAR



SECTION A-A



Number of Ribcap	Depth of Ribcap	Pipe Spacing	Single Barrel	Double Barrel	Conditions for use of Cross Pipes	Gross Pipe Size
12	0.6	9"	N/A	2'-1.1"	3 or more Pipe Culverts	3" STD (5,500' O.D.)
15	0.7	11"	N/A	2'-5"	3 or more Pipe Culverts	3" STD (5,500' O.D.)
18	0.8	1'-2"	N/A	2'-10"	3 or more Pipe Culverts	3" STD (5,500' O.D.)
21	0.9	1'-4"	N/A	3'-2"	3 or more Pipe Culverts	3" STD (5,500' O.D.)
24	0.9	1'-7"	N/A	3'-6"	3 or more Pipe Culverts	3" STD (5,500' O.D.)
27	1.0	1'-8"	N/A	3'-11"	2 or more Pipe Culverts	3 1/2" STD (6,000' O.D.)
30	1.1	1'-10"	N/A	4'-2"	All Pipe Culverts	4" STD (6,500' O.D.)
33	1.2	1'-11"	4'-2"	4'-8"	All Pipe Culverts	4" STD (6,500' O.D.)
36	1.3	2'-0"	4'-5"	4'-9"	All Pipe Culverts	4" STD (6,500' O.D.)
42	1.5	2'-4"	4'-11"	5'-5"	All Pipe Culverts	4" STD (6,500' O.D.)
48	1.7	2'-7"	5'-5"	6'-0"	All Pipe Culverts	4" STD (6,500' O.D.)
54	2.0	3'-0"	5'-11"	6'-9"	All Pipe Culverts	4" STD (6,500' O.D.)
60	2.2	3'-3"	6'-5"	7'-4"	All Pipe Culverts	4" STD (6,500' O.D.)
66	2.4	3'-5"	6'-11"	7'-10"	All Pipe Culverts	4" STD (6,500' O.D.)
72	2.7	3'-8"	7'-5"	8'-5"	All Pipe Culverts	4" STD (6,500' O.D.)

- The proper installation of the first Cross Pipe is critical for vehicle safety. The top of the first Cross Pipe must be placed at or more than 6" above the flow line.
- Size of Cross Pipes, except the first bottom pipe, shall be as shown in the PIPE SIZE TABLE. The first bottom pipe shall be 3 1/2" Standard Pipe (6,000' O.D.).
- The third Cross Pipe from the bottom of the culvert shall be placed at or more than 6" above the flow line. The Cross Pipe shall be placed at or more than 6" above the flow line to ensure that Ribcap concrete does not flow into the connection to allow clearance access. At the Contractor's discretion, the Ribcap concrete may also be installed using the bolted connection details.
- Main Cross Slope as shown elsewhere in the plans. Cross Slope of 6:1 or flatter is required for vehicle safety.
- Ribcap placed beyond the limits shown will be paid as Concrete Ribcap in accordance with Item 457 - Ribcap.
- Quantities shown are for one end of one reinforced concrete pipe culvert. For multiple pipe culverts or for corrugated metal pipe culverts, quantities will need to be adjusted. Ribcap quantities are for Contractor's information only.

GENERAL NOTES:

Cross Pipes are designed for a traveling load of 10,000 pounds at yield as recommended by the Federal Road and Bridge Builders' Association or Roadway Materials Institute, March 1981. Safety End treatments shown herein are intended for use on the ends of pipe culverts. The design of the vehicle end treatment depends on the design of the pipe culvert. The design of the vehicle end treatment shall be determined by the Contractor and all necessary inverts shall be provided for the pipe culvert. The design of the vehicle end treatment shall be determined by the Contractor and all necessary inverts shall be provided for the pipe culvert. The design of the vehicle end treatment shall be determined by the Contractor and all necessary inverts shall be provided for the pipe culvert.

Texas Department of Transportation
Safety End Treatment
FOR 12" DIA TO 72" DIA
PIPE CULVERTS
TYPE II - PARALLEL DRAINAGE

SETP-PD

DATE: 11/16/2020
BY: [Signature]
CHECKED: [Signature]
APPROVED: [Signature]