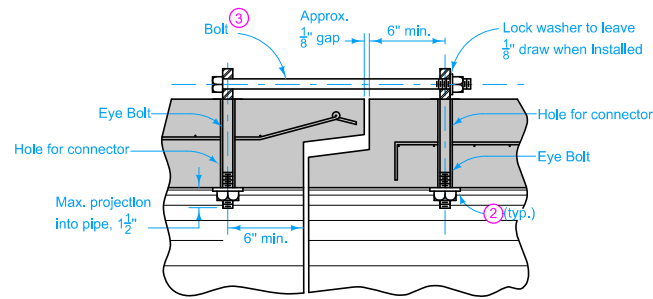
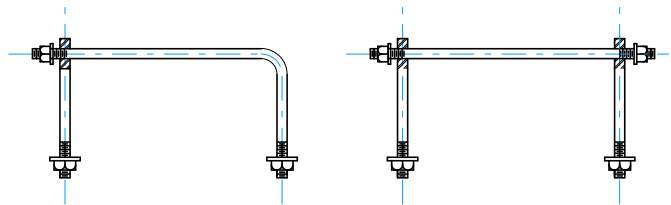


**SECTION OF PIPE CONNECTOR  
(Concrete Pipe to Corrugated Pipe)**



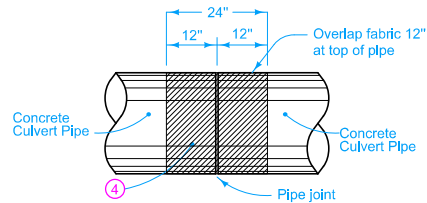
**SECTION OF PIPE CONNECTOR  
(Concrete Pipe to Concrete Pipe)**



**ONE BEND END**

**THREADED AT BOTH ENDS**

**OPTIONAL BOLTS/CONNECTORS**



**PIPE JOINT WRAPPING**

PIPE SIZE (in)	CONNECTOR AND BOLT SIZE (in.)	HOLE FOR CONNECTOR (in.)
12 to 27	3/8	7/8
30 to 60	1/2	1.0
66 to 132	1.0	1 1/4

Wrap all joints on concrete roadway pipe culverts.

Use Type 3 Connections on all culvert pipes, unless specified otherwise. Refer to Materials I.M. 445.01 for Connector requirements.

Minimum 2 threads showing at all threaded ends.

Connections not required on pipe sections installed by trenchless methods.

**TYPE 1**

One connector at the top of the pipe section.

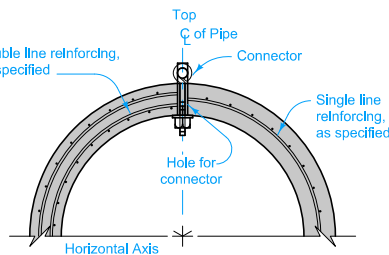
**TYPE 2 (Sealed Joint)**

Two connectors near the top of the pipe section. For details of reinforcement, refer to AASHTO M 170 for the class of pipe required. Refer to Materials I.M. 491.09 for seal requirements.

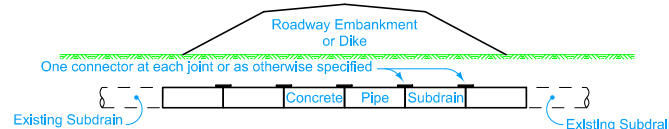
**TYPE 3 (Non - Sealed Joint)**

Two connectors near the top of the pipe section. For details of reinforcement, refer to AASHTO M 170 for the class of pipe required.

- ① If holes are field drilled, place a ribbon of butyl sealant around bolts before placing 3 in. x 3 in. x 1/4 in. plate on bolts through corrugated metal pipe and tightening nuts.
- ② 1 1/2 inch round x 3/16 inch thick washer or 3 in. x 3 in. x 1/4 in. square plate (shaped to pipe radius).
- ③ Connectors with One Bend End and Bell End spacers allowed per Materials I.M. 451. Refer to Optional Bolts detail.
- ④ Engineering fabric for embankment erosion control.



**TYPICAL SECTION  
(Non-Sealed Joint)**



**TYPICAL INSTALLATION**

**TYPE 1 CONNECTION**

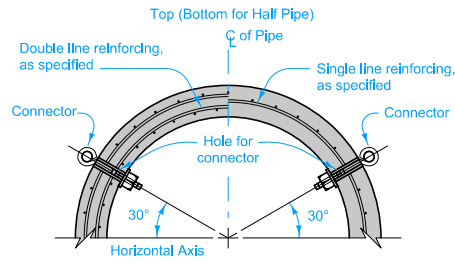
Possible Tabulation:  
104-3

<b>IOWA DOT</b>	REVISION
	New 04-21-15
<b>STANDARD ROAD PLAN</b>	<b>DR-121</b>
SHEET 1 of 2	

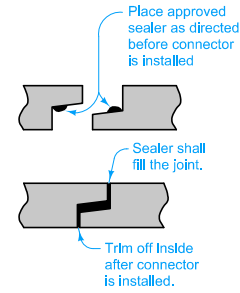
REVISIONS: New. Replaces RF-14

*Brian Smith*  
APPROVED BY DESIGN METHODS ENGINEER

**CONNECTED PIPE JOINTS**

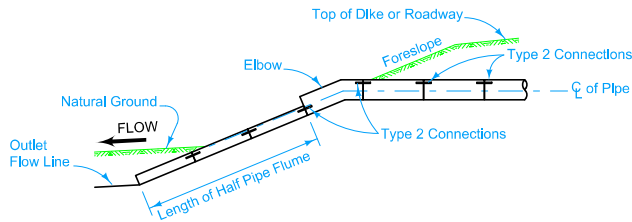


**TYPICAL SECTION  
TYPE 2 CONNECTION  
TYPE 3 CONNECTION**

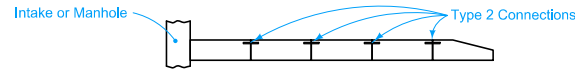


**SEALED JOINT  
TYPE 2 CONNECTION**

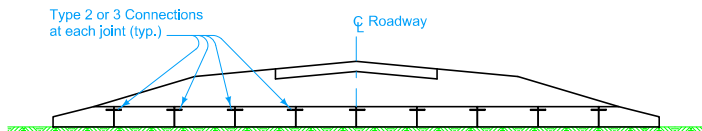
5 On culvert extensions, connect all new joints including the joint between the old and new culvert pipe. Holes may need to be drilled into existing pipes.



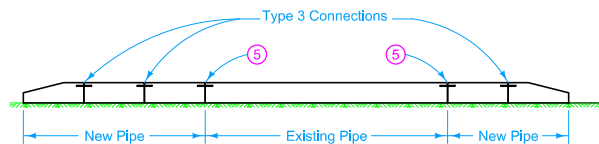
**TYPICAL INSTALLATION  
TYPE 2 CONNECTION**



**TYPICAL INSTALLATION  
STORM SEWER OUTLET - TYPE 2 CONNECTION**



**TYPICAL INSTALLATION  
NEW CONSTRUCTION - TYPE 2 or 3 CONNECTION**



**TYPICAL INSTALLATION  
PIPE EXTENSION - TYPE 3 CONNECTION**

TYPE 2 AND TYPE 3 CONNECTIONS

	REVISION
	New 04-21-15
<b>STANDARD ROAD PLAN</b>	<b>DR-121</b>
REVISIONS: New. Replaces RF-14	SHEET 2 of 2

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*Brian Smith*

**CONNECTED PIPE JOINTS**