

Flume Notes:

1. Reinforcing bar clearances will be as follows:

Edge clearances:	2" except
Top of floor	2 1/4" to near transverse reinforcing bar
Bottom of floor	3 1/2" to near transverse reinforcing bar
End clearances:	
Vertical top	2"
Vertical bottom	3 1/2"
Transverse	2"

2. Floor of flume is to be finished smooth. Sides of footing are to be formed to ensure correct line and grade.
3. All floor reinforcing steel is to be supported at intervals of not more than 3'-0" in either direction as outlined in the Standard Specifications.
4. The vertical bars in the walls may be spliced above the footing at the contractor's option as follows:

Bar Size Number	4	5	6	7	8
Minimum Splice Length	20"	24"	29"	34"	38"

This splice, if used will be at the contractor's expense.

5. Beveled 2"x4" keyways are to be used for 9" and 10" walls and 2"x6" keyways are used for 11" and greater wall thickness.
6. Keyway dimensions shown on the plans are based on nominal dimensions unless stated otherwise. In addition, the bevel used on the keyway shall be limited to a maximum of 10 degrees from vertical.
7. These flume standards label all reinforcing steel with English notation (5a1 is 5/8 inch diameter bar). English reinforcing received in the field may display the following "bar designation". The "bar designation" is the stamped impression on the reinforcing bars, and is equivalent to the bar diameter in millimeters.

English Size	4	5	6	7	8
Bar Designation	13	16	19	22	25

General Considerations:

The flume standards, when used in combination with a properly completed Situation Plan and the appropriate Standard Sheet 1070 series will provide structural plans and the flume "Estimated Project Quantities".

Specifications:

Design:

AASHTO LRFD Bridge Design Specifications, 8th Ed., Series of 2017.


Construction:

Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, current series, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 8th Ed., Series of 2017:
 Reinforcing steel in accordance with AASHTO LRFD Section 5, Grade 60.
 Concrete in accordance with AASHTO LRFD Section 5, f'c = 4.0 ksi.

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LATEST REVISION DATE	APPROVED BY BRIDGE ENGINEER		
		Standard Design Single Reinforced Concrete Box Culverts December, 2020	
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