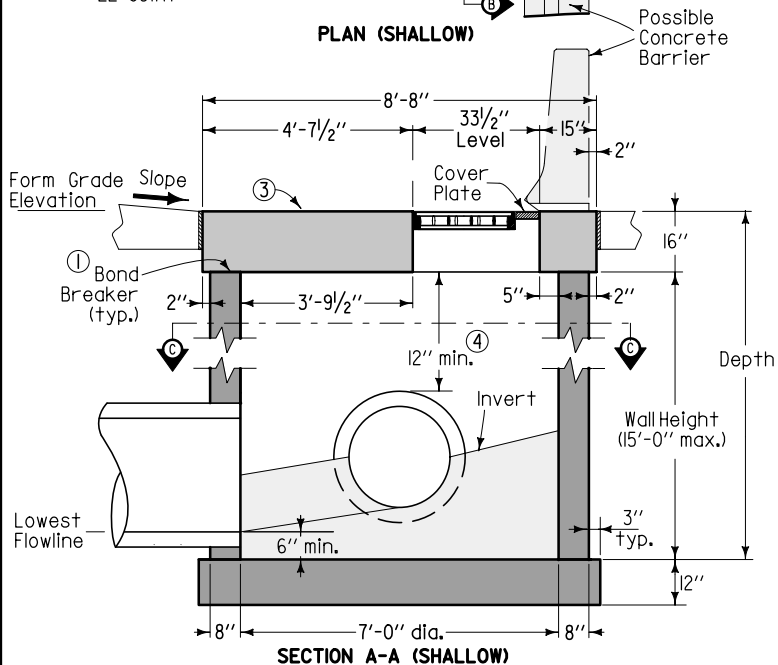
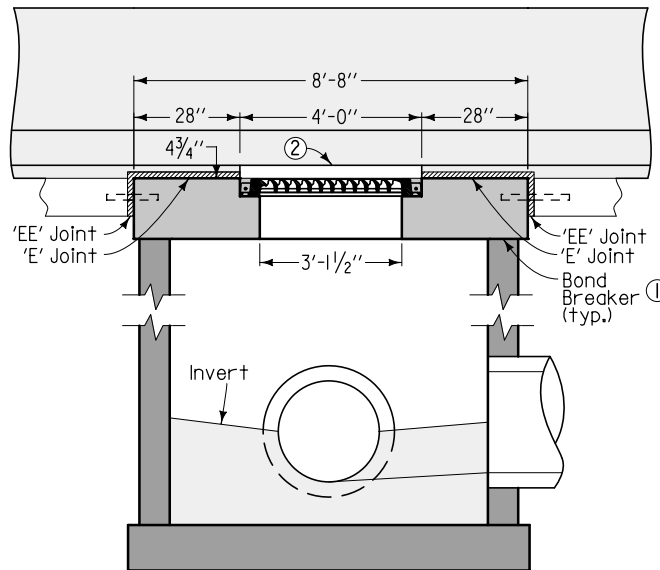


PLAN (SHALLOW)



SECTION A-A (SHALLOW)



SECTION B-B (SHALLOW)

Allplate and edge armor steel to be ASTM A 36, galvanized after fabrication.

Remove cover plate before constructing concrete barrier.

Cast frames into intake top so tops of grates are 1/4" below Form Grade Elevation. Bolt intake frames together on both sides with four 1/2" x 4" bolts.

For joint details, refer to PV-1.

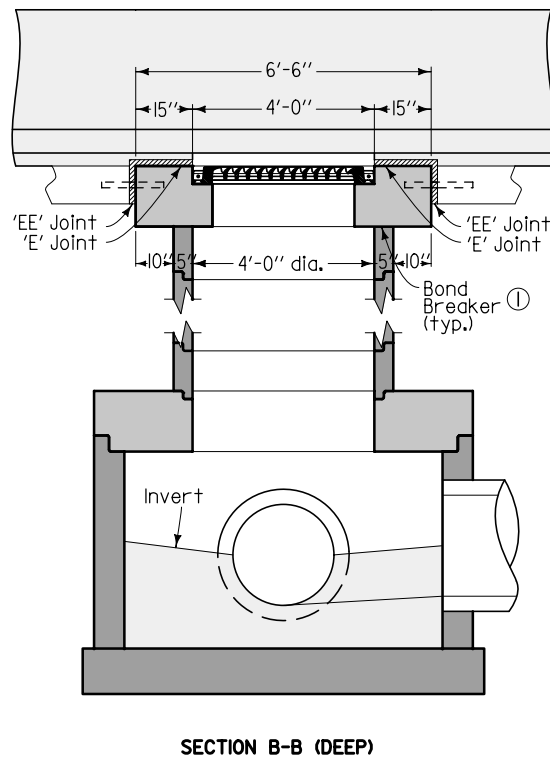
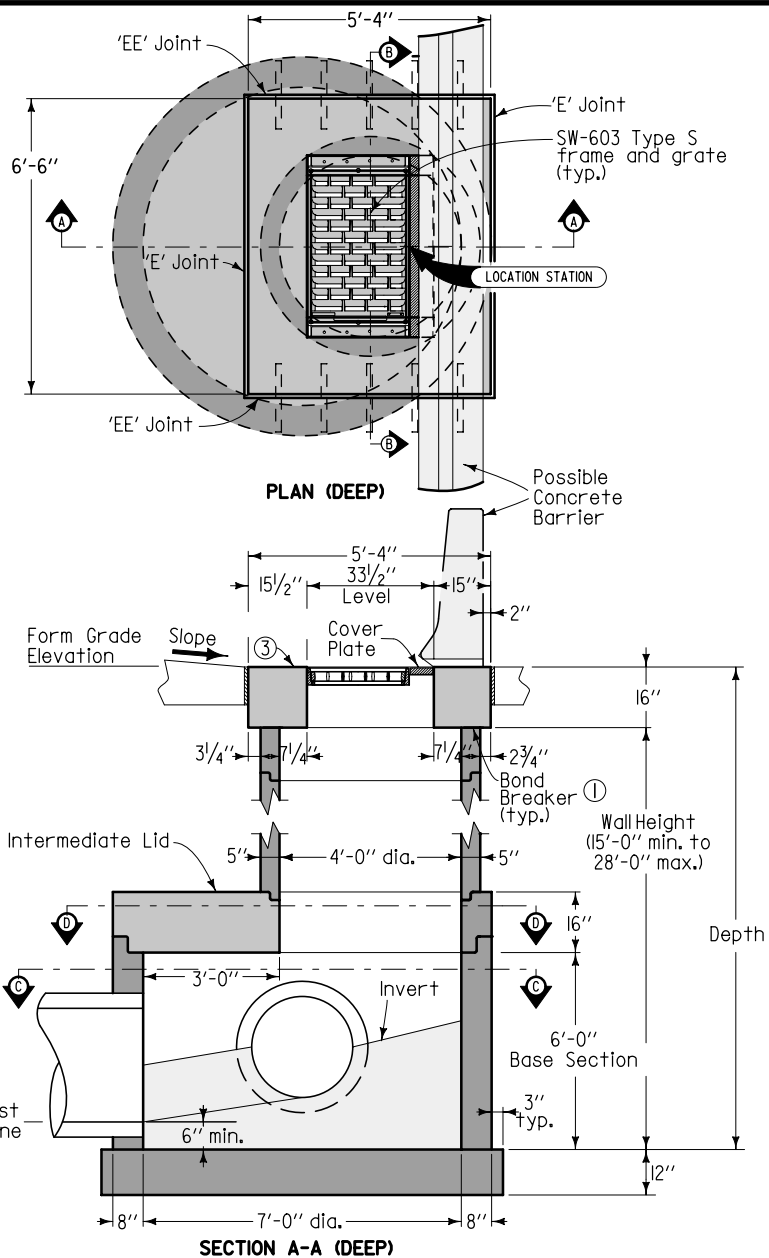
- ① Trowel smooth and place two layers of 30-pound roofing felt to prevent bond.
- ② Leave 3-inch opening through barrier over the intake.
- ③ Vary slope of top to match elevation of adjacent pavement.
- ④ 12-inch minimum above all pipes.

Shallow circular intake H = 3'-0" to 15'-0" 7' barrel diameter
Deep circular option: H = 15'-0" to 28'-0" 4' and 7' barrel diameters

Possible Contract Item:  
Barrier Intake, SW-548

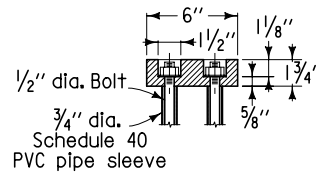
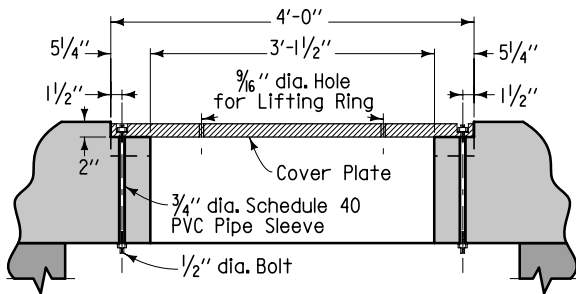
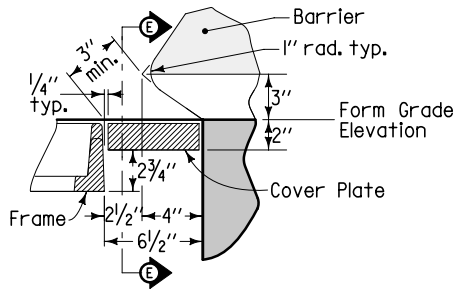
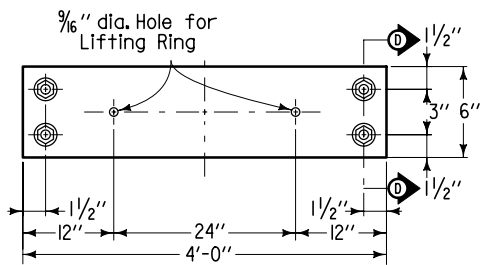
Possible Tabulation:  
104-5B

<p>Iowa Department of Transportation</p> <p><b>STANDARD ROAD PLAN</b></p> <p>REVISIONS: Updated references to renamed standards.</p> <p><i>Deanna Maifeld</i> APPROVED BY DESIGN METHODS ENGINEER</p>	<p>REVISION</p> <p>1 04-20-10</p>
	<p><b>SW-548</b></p> <p>SHEET 1 of 6</p>
<p><b>SINGLE-GRATE BARRIER INTAKE, CIRCULAR</b></p>	

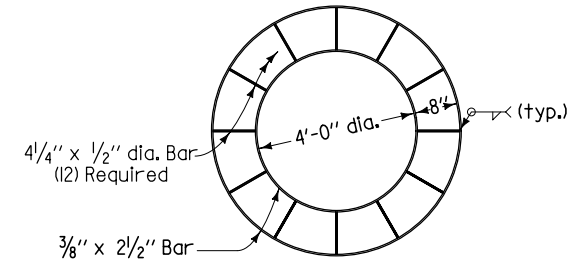
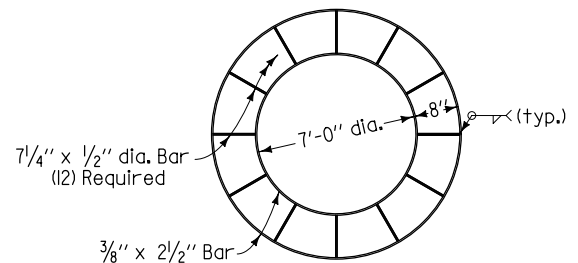
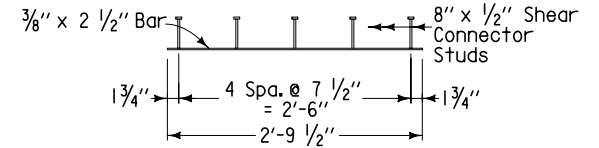


- ① Trowelsmooth and place two layers of 30-pound roofing felt to prevent bond.
- ② Leave 3-inch opening through barrier over the intake.
- ③ Vary slope of top to match elevation of adjacent pavement.
- ④ 12-inch minimum above all pipes.

 Iowa Department of Transportation	REVISION
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<b>STANDARD ROAD PLAN</b>	SHEET 2 of 6
REVISIONS: Updated references to renamed standards.	
<i>Deanna Maiford</i> APPROVED BY DESIGN METHODS ENGINEER	
<b>SINGLE-GRATE BARRIER INTAKE, CIRCULAR</b>	

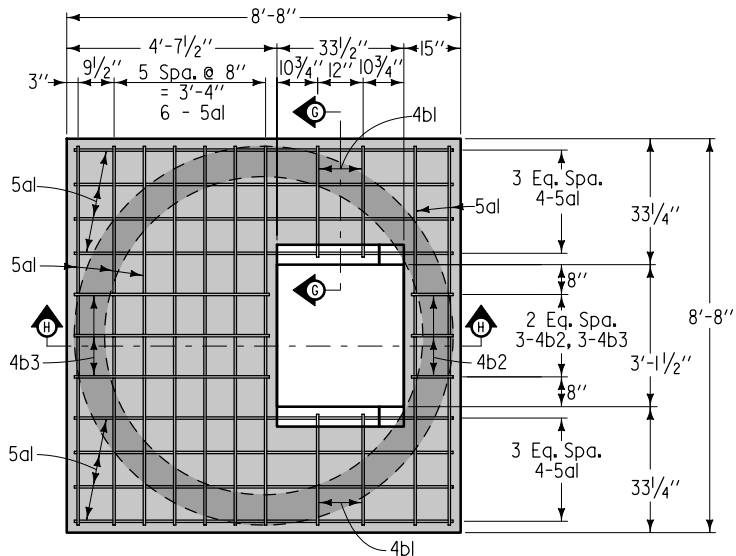


COVER PLATE

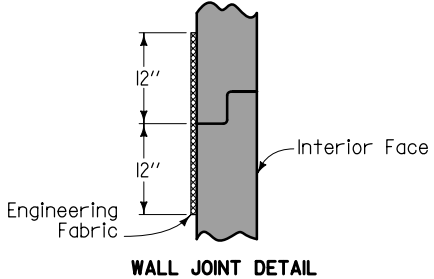


EDGE ARMOR

<p>Iowa Department of Transportation</p> <p><b>STANDARD ROAD PLAN</b></p> <p>REVISIONS: Updated references to renamed standards.</p> <p><i>Deanna Maifeld</i> APPROVED BY DESIGN METHODS ENGINEER</p> <p><b>SINGLE-GRATE BARRIER INTAKE, CIRCULAR</b></p>	<p>REVISION</p> <p>1 04-20-10</p>
	<p><b>SW-548</b></p> <p>SHEET 3 of 6</p>

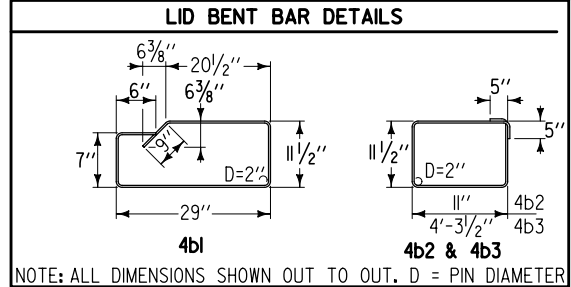


PLAN



WALL JOINT DETAIL

LID REINFORCING BAR LIST						
EPOXY-COATED						
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	
5al	Lid, Longitudinal & Transverse		34	8'-4"	296	
4b1	Lid Hoop		4	6'-11"	18	
4b2	Lid Hoop		3	4'-7"	9	
4b3	Lid Hoop		3	11'-4"	23	
EPOXY COATED REINFORCING STEEL - TOTAL					346	



NOTE: ALL DIMENSIONS SHOWN OUT TO OUT. D = PIN DIAMETER

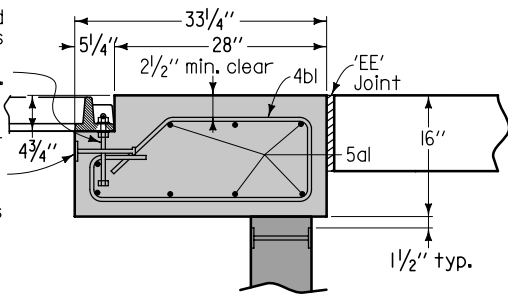
LID QUANTITY SUMMARY (SHALLOW)		
Concrete		3.2 CY
Epoxy Coated Reinforcing Steel		346 LB

• Based on Minimum thickness = 16"

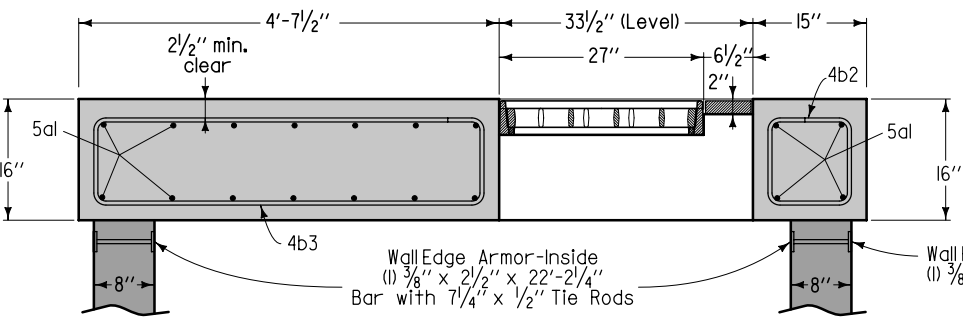
Maximum Pipe Diameter for Pipes at:		
90° Separation	180° Separation	
36	48	

1/2" x 8" galvanized H.S. bolt with two nuts and washers. Eight required per frame.

Frame Ring Edge Armor  
1/2" x 33 1/2"  
Bar with 8" x 1/2"  
Shear Connector Studs



SECTION G-G



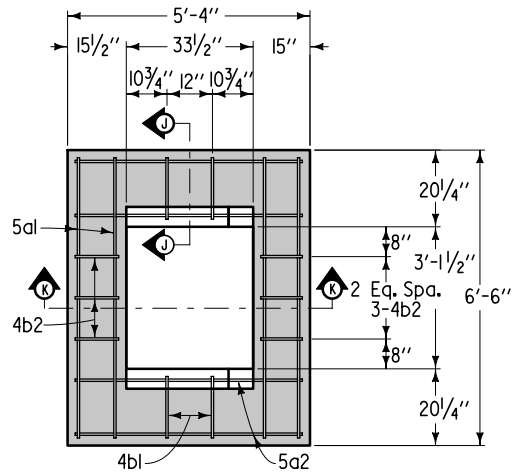
SECTION H-H

LID (SHALLOW)

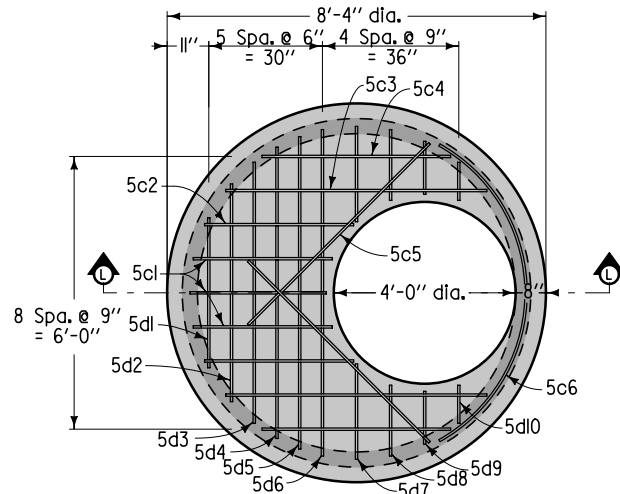
Wall Edge Armor-Inside  
(1) 3/8" x 2 1/2" x 22'-2 1/4"  
Bar with 7 1/4" x 1/2" Tie Rods

Wall Edge Armor-Outside  
(1) 3/8" x 2 1/2" x 26'-2 3/16" Bar

<p>Iowa Department of Transportation</p> <p><b>STANDARD ROAD PLAN</b></p> <p>REVISIONS: Updated references to renamed standards.</p> <p><i>Deanna Maiford</i> APPROVED BY DESIGN METHODS ENGINEER</p> <p><b>SINGLE-GRADE BARRIER INTAKE, CIRCULAR</b></p>	<p>REVISION</p> <table border="1"> <tr> <td>1</td> <td>04-20-10</td> </tr> </table>	1	04-20-10
	1	04-20-10	
	<p><b>SW-548</b></p> <p>SHEET 4 of 6</p>		

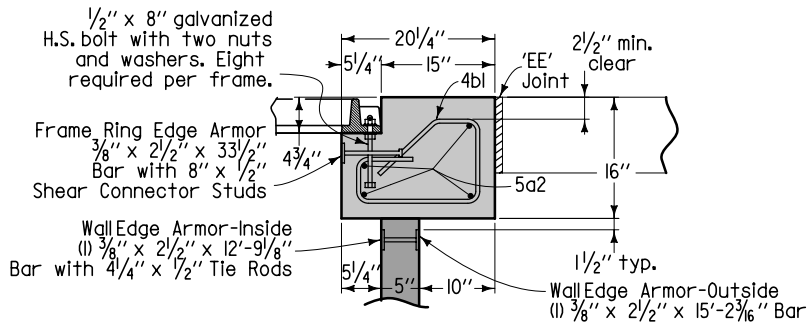


PLAN

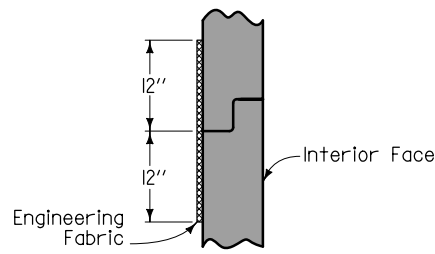


SECTION D-D  
INTERMEDIATE LID

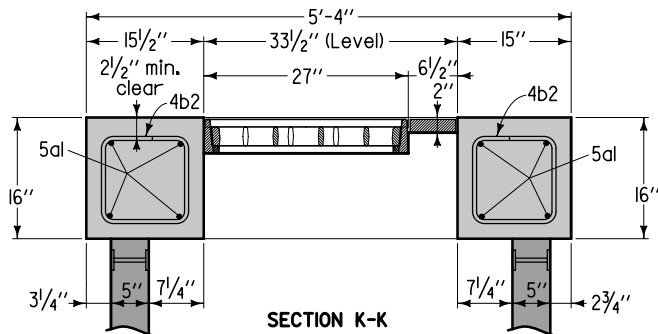
LID REINFORCING BAR LIST					
EPOXY-COATED					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	Lid, Longitudinal	—	8	6'-2"	51
5a2	Lid, Transverse	—	8	5'-0"	42
4b1	Lid Hoop	⊠	4	4'-9"	13
4b2	Lid Hoop	⊠	6	4'-7"	18
5c1	Intermediate Lid	—	3	3'-0"	9
5c2	Intermediate Lid	—	2	3'-3"	7
5c3	Intermediate Lid	—	2	5'-9"	12
5c4	Intermediate Lid	—	2	4'-2"	9
5c5	Intermediate Lid	—	2	5'-8"	12
5c6	Intermediate Lid	—	1	8'-2"	9
5d1	Intermediate Lid	—	1	3'-5"	4
5d2	Intermediate Lid	—	1	4'-10"	5
5d3	Intermediate Lid	—	1	5'-9"	6
5d4	Intermediate Lid	—	1	6'-5"	7
5d5	Intermediate Lid	—	1	6'-10"	7
5d6	Intermediate Lid	—	1	7'-2"	7
5d7	Intermediate Lid	—	2	2'-1"	4
5d8	Intermediate Lid	—	2	1'-6"	3
5d9	Intermediate Lid	—	2	1'-2"	2
5d10	Intermediate Lid	—	2	0'-11"	2
EPOXY COATED REINFORCING STEEL - TOTAL					229



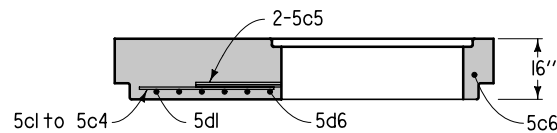
SECTION J-J



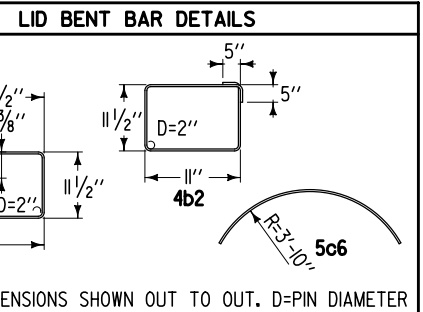
WALL JOINT DETAIL



SECTION K-K



LID (DEEP)



LID QUANTITY SUMMARY (DEEP)	
Concrete - Lid	L2 CY
Concrete - Intermediate Lid	2J CY
Epoxy Coated Reinforcing Steel	229 LB

Iowa Department of Transportation

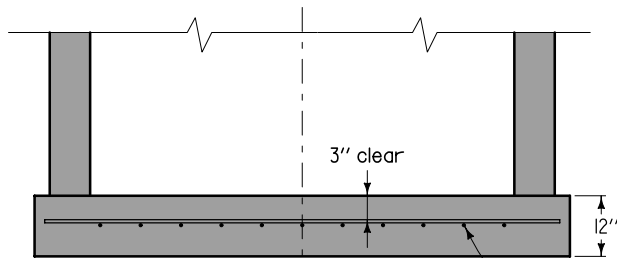
**STANDARD ROAD PLAN** **SW-548**

REVISIONS: Updated references to renamed standards.

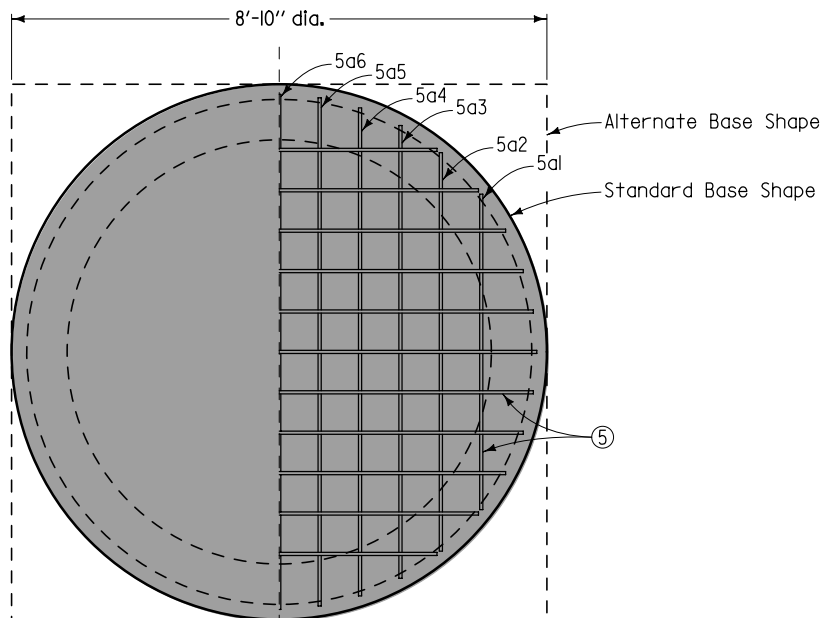
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**SINGLE-GRATE BARRIER INTAKE, CIRCULAR**

REVISION	1	04-20-10
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PART SECTION A-A



PLAN

BASE

BASE REINFORCING BAR LIST					
EPOXY-COATED					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	Base, Longit. & Transverse	---	4	5'-3"	22
5a2	Base, Longit. & Transverse	---	4	6'-7"	27
5a3	Base, Longit. & Transverse	---	4	7'-6"	31
5a4	Base, Longit. & Transverse	---	4	8'-0"	33
5a5	Base, Longit. & Transverse	---	4	8'-4"	35
5a6	Base, Longit. & Transverse	---	2	8'-6"	18
EPOXY COATED REINFORCING STEEL - TOTAL					166

**BASE QUANTITY SUMMARY**

Concrete	2.3 CY
Epoxy Coated Reinforcing Steel	166 LB

• Based on Standard Base Shape

⑤ #5 at 8-inch centers each direction or equivalent welded wire fabric.

<p>Iowa Department of Transportation</p> <p><b>STANDARD ROAD PLAN</b></p> <p>REVISIONS: Updated references to renamed standards.</p> <p><i>Deanna Maifeld</i> APPROVED BY DESIGN METHODS ENGINEER</p>	<p>REVISION</p> <p>1 04-20-10</p>
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<p><b>SINGLE-GRATE BARRIER INTAKE, CIRCULAR</b></p>	