

Dimensions		
S (%)	H1 (In.)	H2 (In.)
1	16.33	16.89
2	16.67	17.78
3	17.00	18.67
4	17.33	19.56
5	17.67	20.45
6	18.00	21.34

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

Remove cover plate before constructing concrete barrier.

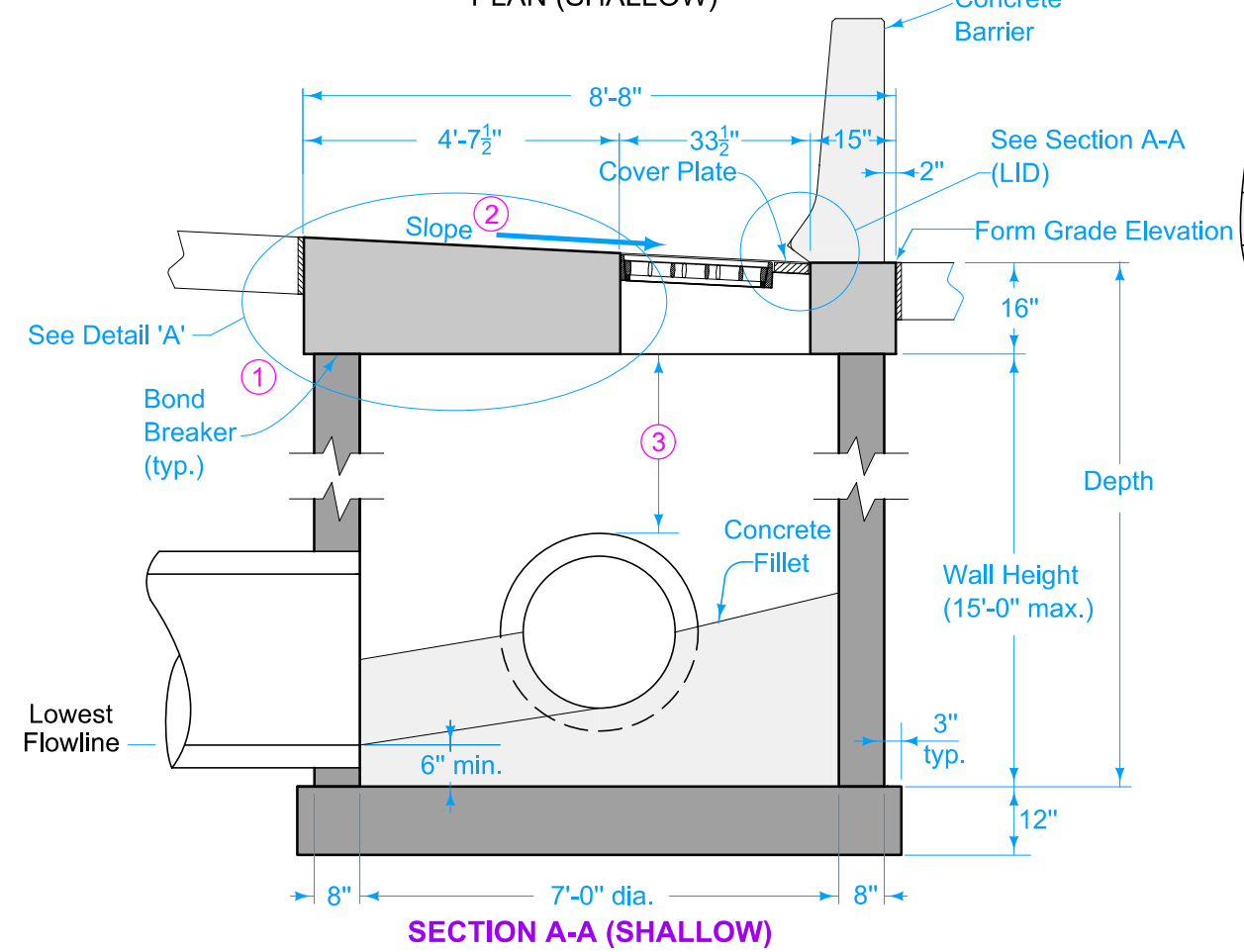
Cast frames into intake top so tops of grates are  $\frac{1}{4}$ " below Form Grade Elevation. Bolt intake frames together on both sides with four  $\frac{1}{2}$ " x 4" bolts.

For joint details, refer to PV-101.

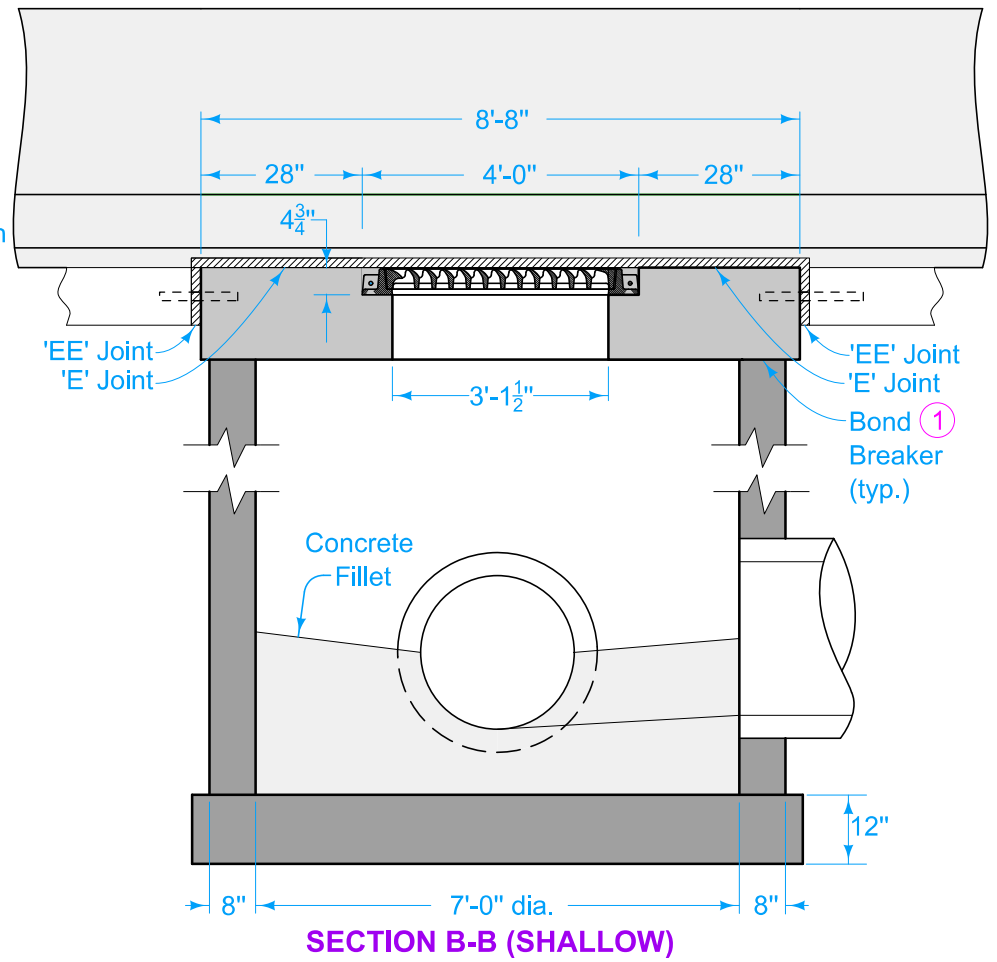
Maximum Pipe Diameter for 2 Pipes	
at 180° Separation	At 90° Separation
48 inches	36 inches

- ① Trowel smooth and place two layers of 30 pound roofing felt to prevent bond.
- ② Match slope of top and grate to adjacent pavement.
- ③ 12 inch minimum above all pipes.

PLAN (SHALLOW)



SECTION A-A (SHALLOW)



SECTION B-B (SHALLOW)

Shallow circular intake  
H = 3'-0" to 15'-0"  
7' barrel diameter

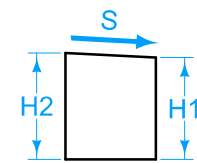
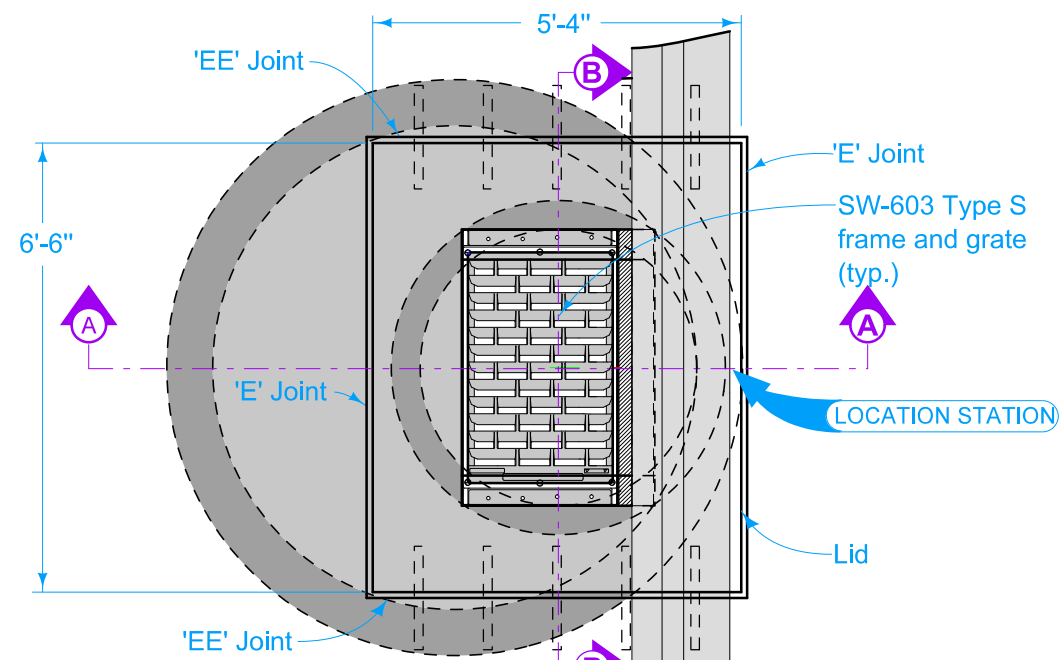
Deep circular option:  
H = 15'-0" to 28'-0"  
4' and 7' barrel diameters

Possible Contract Item:  
Barrier Intake, SW-548

Possible Tabulation:  
104-5B

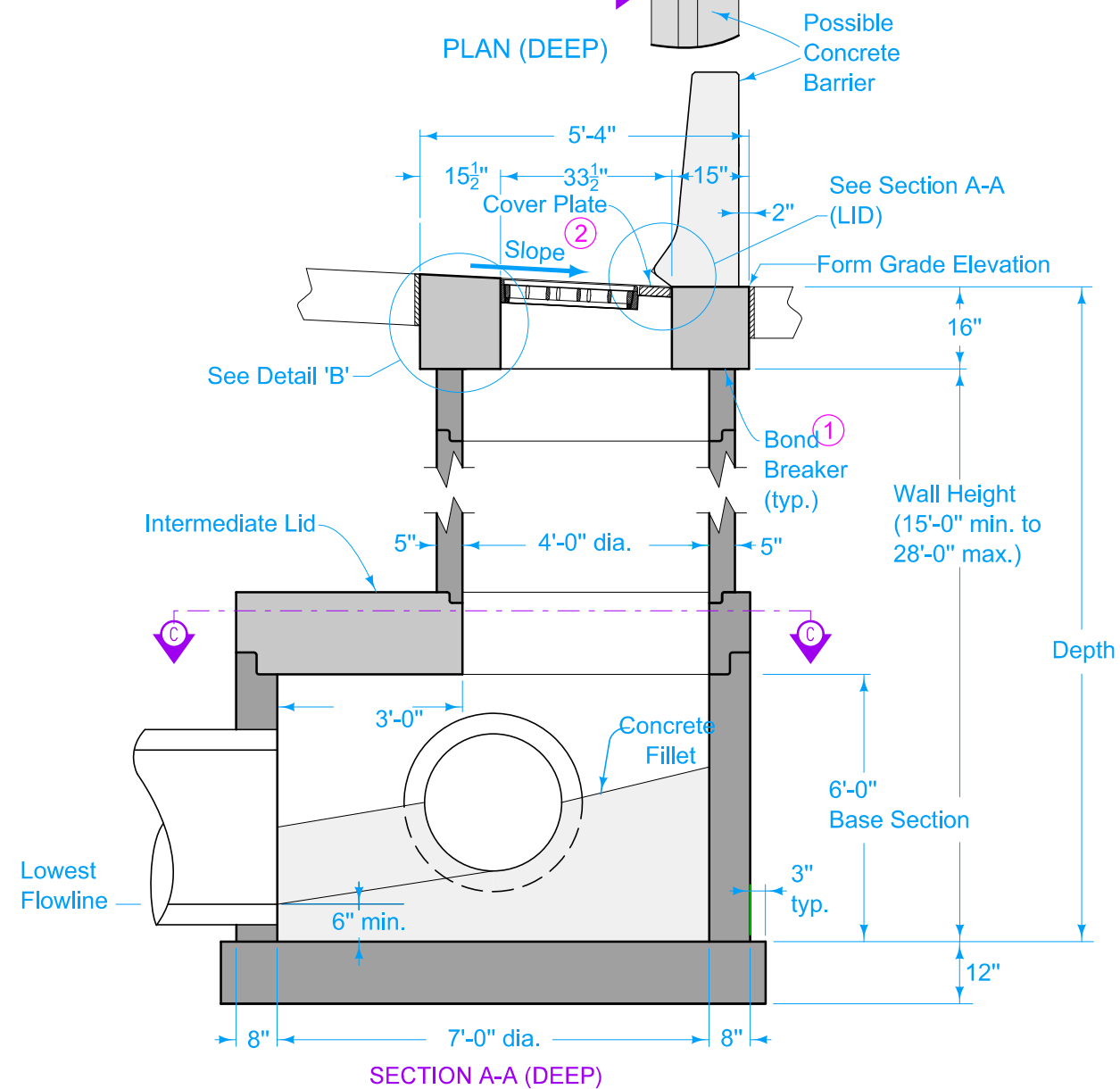
	REVISION	
	6	10-16-18
<b>STANDARD ROAD PLAN</b>		<b>SW-548</b>
SHEET 1 of 6		
REVISIONS: Changed the 'Form Grade Location' on Sheet 2 and removed the "Form Grade Location" call out on Sheet 3 to be consistent with Sheet 1.		
APPROVED BY DESIGN METHODS ENGINEER		
<b>SINGLE-GRATE BARRIER INTAKE, CIRCULAR</b>		

- 1 Trowel smooth and place two layers of 30-pound roofing felt to prevent bond.
- 2 Match slope of top and grate to adjacent pavement.

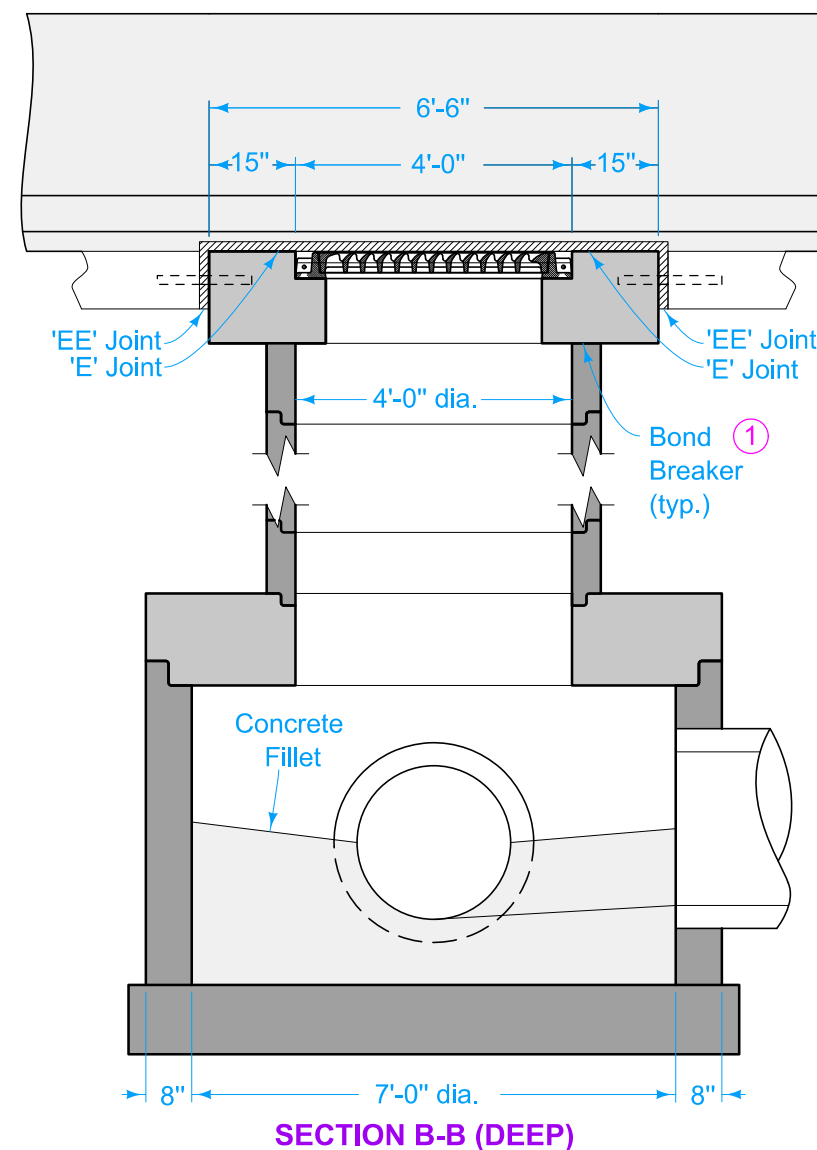


Dimensions		
S (%)	H1 (In.)	H2 (In.)
1	16.33	16.59
2	16.67	16.98
3	17.00	17.47
4	17.33	17.96
5	17.67	18.45
6	18.00	18.94

DETAIL 'B'

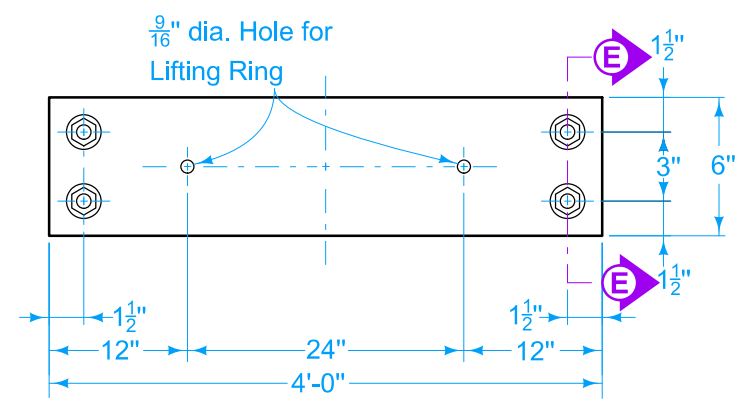


SECTION A-A (DEEP)

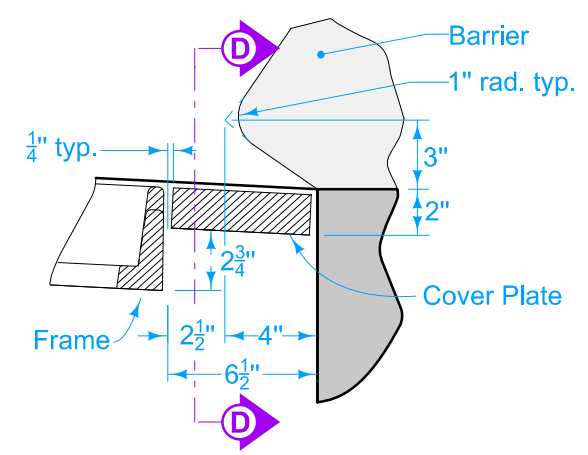


SECTION B-B (DEEP)

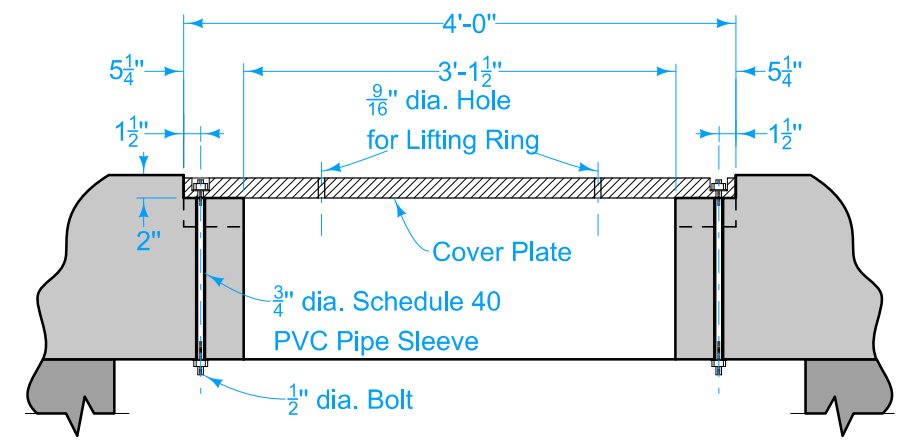
	REVISION	
	6	10-16-18
<b>STANDARD ROAD PLAN</b>		<b>SW-548</b>
SHEET 2 of 6		
REVISIONS: Changed the 'Form Grade Location' on Sheet 2 and removed the "Form Grade Location" call out on Sheet 3 to be consistent with Sheet 1.		
APPROVED BY DESIGN METHODS ENGINEER		
<b>SINGLE-GRATE BARRIER INTAKE, CIRCULAR</b>		



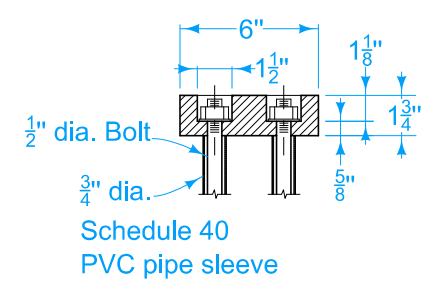
PLAN



SECTION A-A (LID)

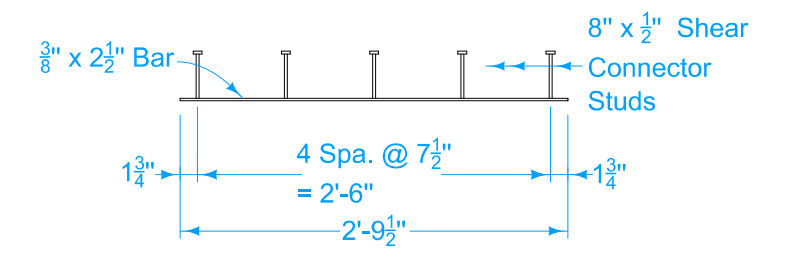


SECTION D-D

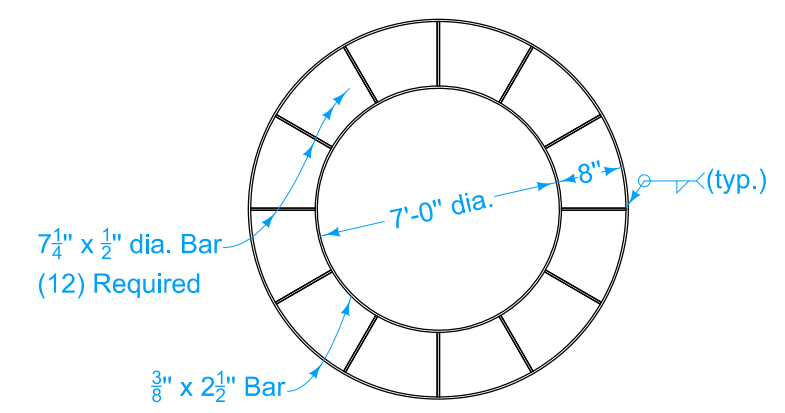


SECTION E-E

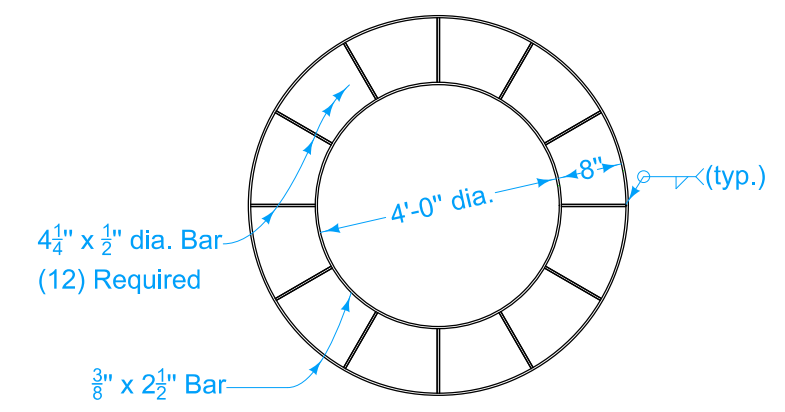
COVER PLATE



FRAME RING (2 required)



WALL (SHALLOW)



WALL (DEEP)

EDGE ARMOR

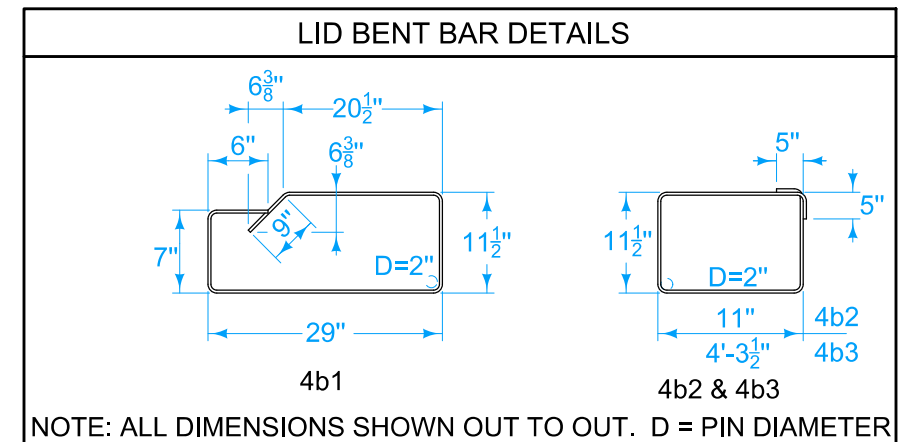
	REVISION	
	6	10-16-18
<b>STANDARD ROAD PLAN</b>		<b>SW-548</b>
SHEET 3 of 6		

REVISIONS: Changed the 'Form Grade Location' on Sheet 2 and removed the 'Form Grade Location' call out on Sheet 3 to be consistent with Sheet 1.

*Shawn Miller*  
APPROVED BY DESIGN METHODS ENGINEER

**SINGLE-GRATE BARRIER INTAKE, CIRCULAR**

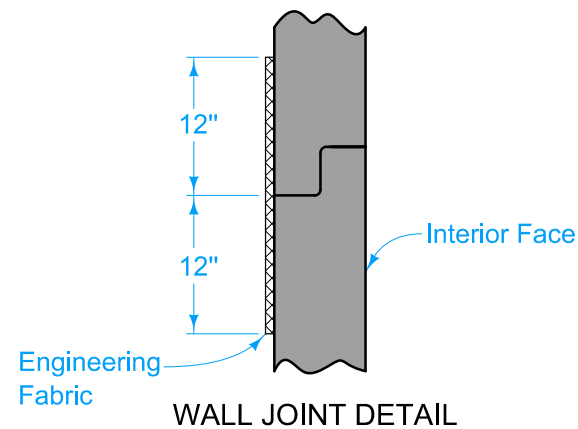
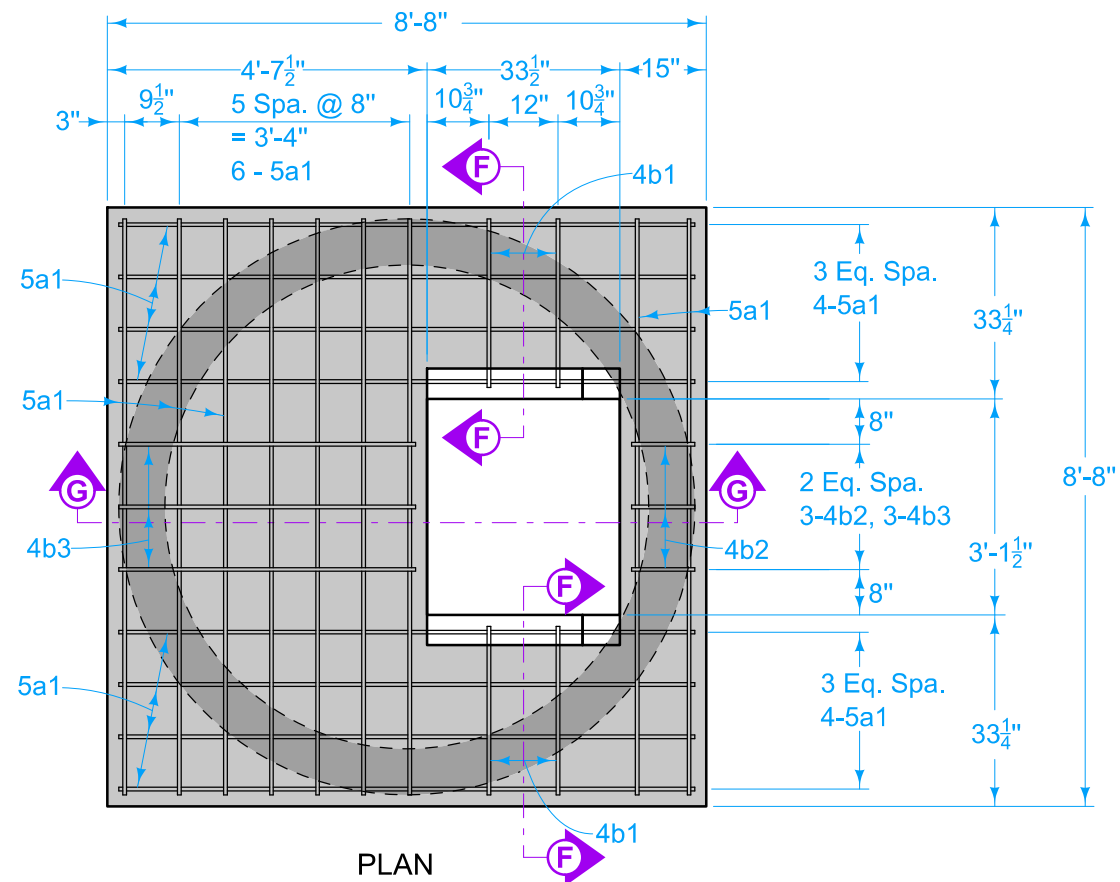
LID REINFORCING BAR LIST					
EPOXY-COATED					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	Lid, Longitudinal & Transverse	—	34	8'-4"	296
4b1	Lid Hoop	⌞	4	6'-11"	18
4b2	Lid Hoop	⌞	3	4'-7"	9
4b3	Lid Hoop	⌞	3	11'-4"	23
EPOXY COATED REINFORCING STEEL - TOTAL					346



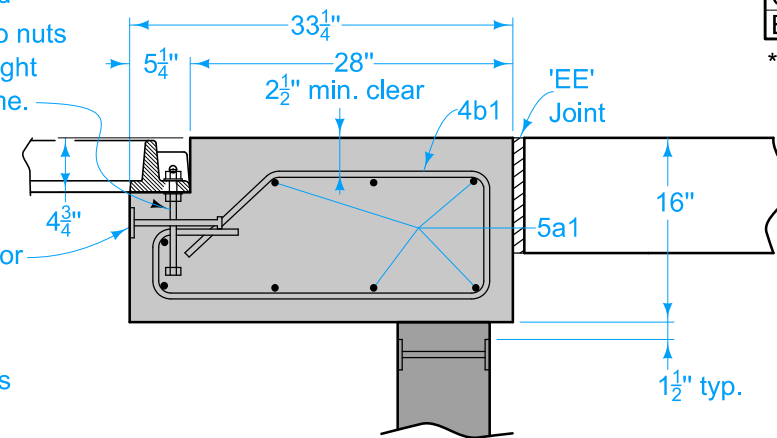
LID QUANTITY SUMMARY (SHALLOW)	
Concrete	3.2 CY*
Epoxy Coated Reinforcing Steel	346 LB

\* Based on Minimum thickness = 16"

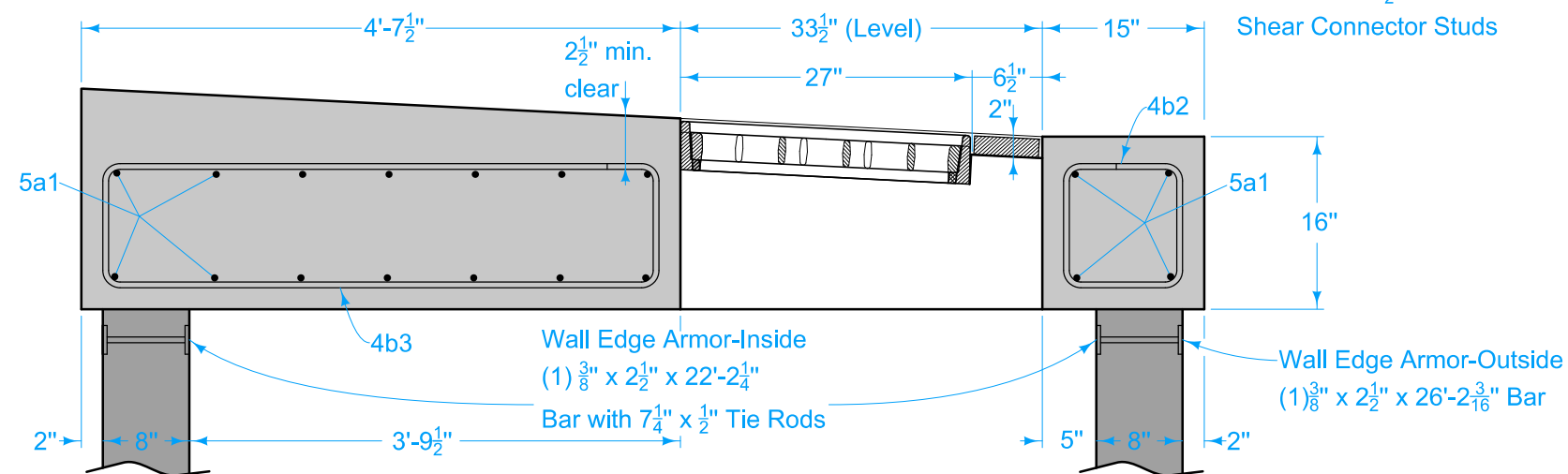
Maximum Pipe Diameter for Pipes at:	
90° Separation	180° Separation
36	48



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

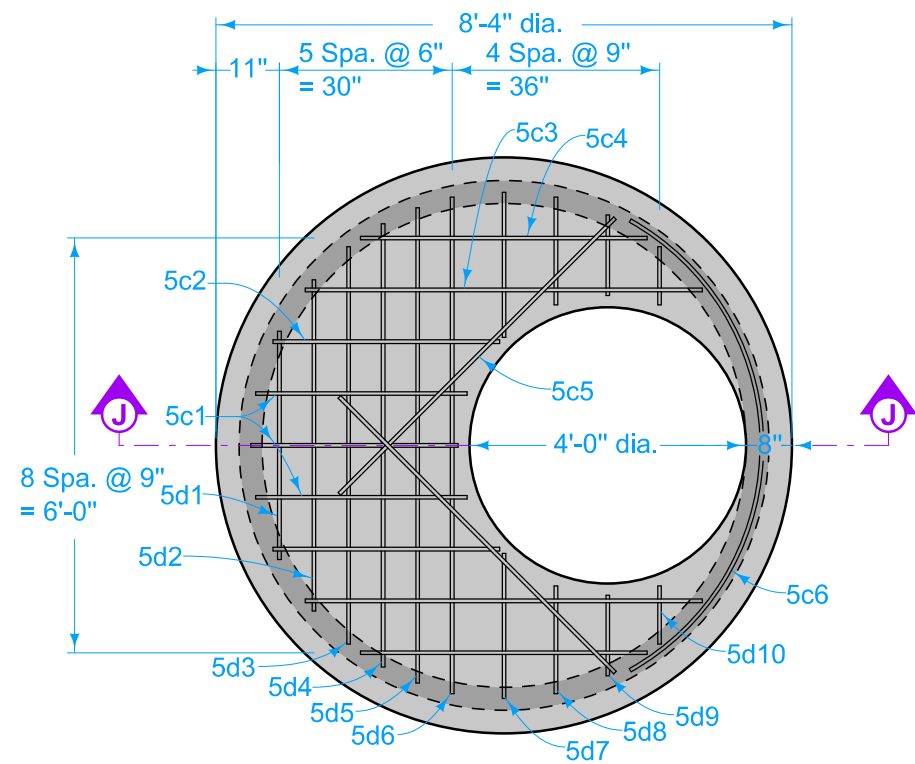
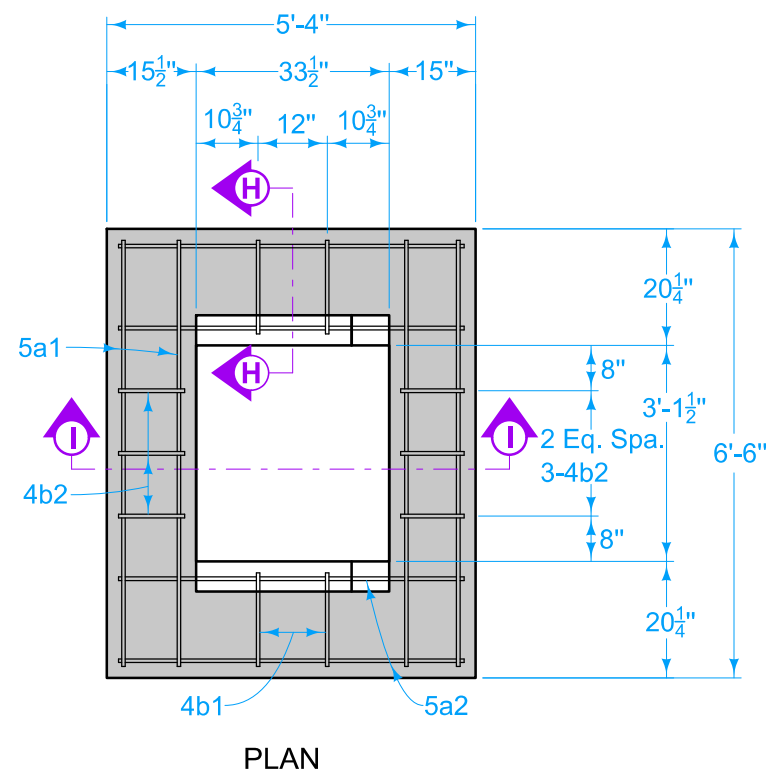


Frame Ring Edge Armor  
1/2" x 33 1/2"  
Bar with 8" x 1/2"  
Shear Connector Studs

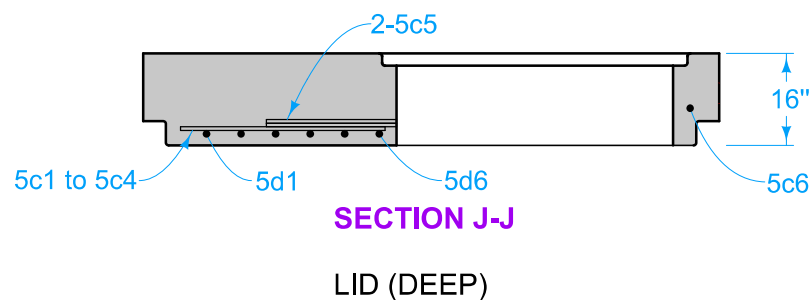
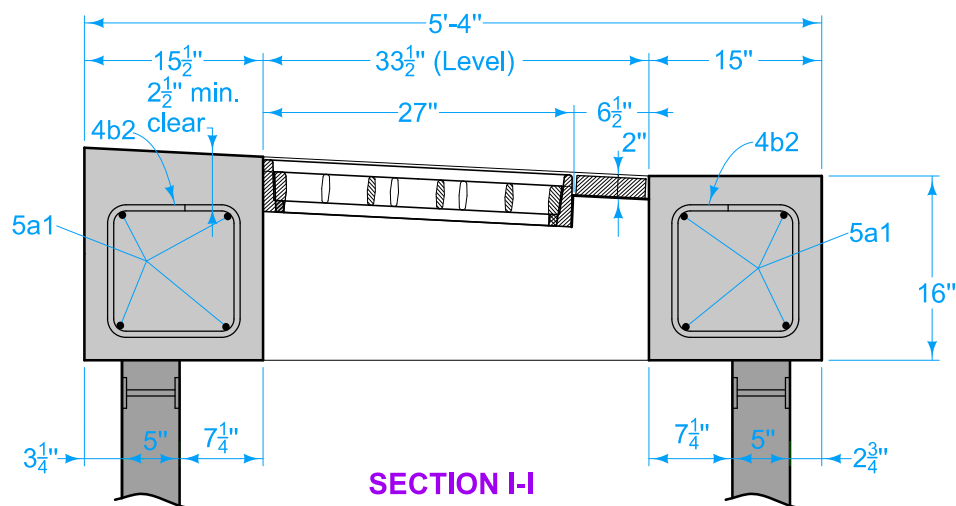
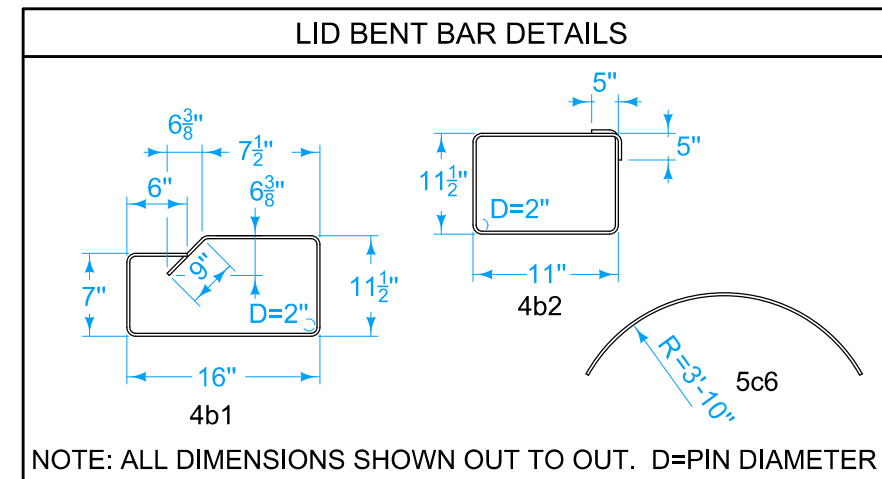
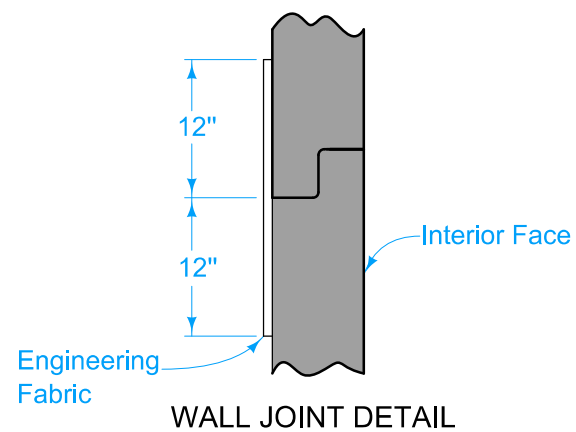
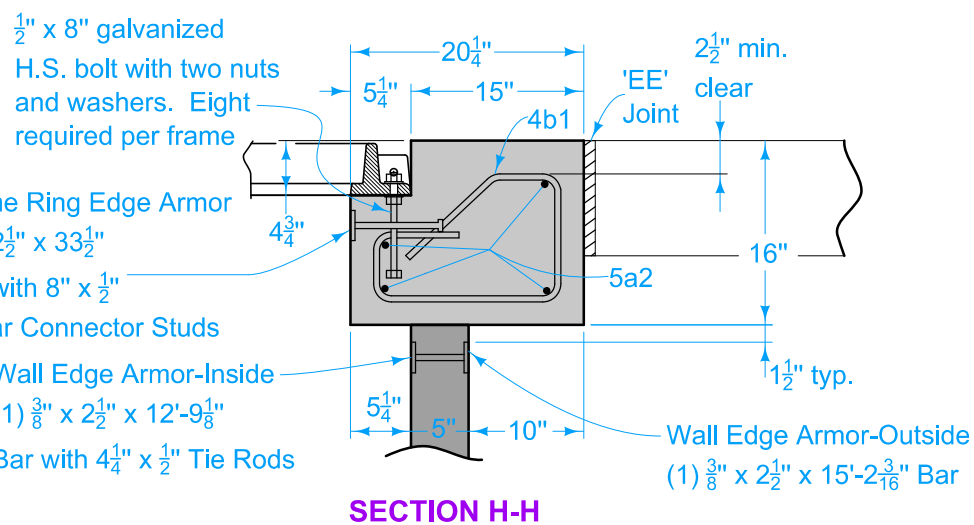


LID (SHALLOW)

	REVISION	
	6	10-16-18
<b>STANDARD ROAD PLAN</b>		<b>SW-548</b>
		SHEET 4 of 6
REVISIONS: Changed the 'Form Grade Location' on Sheet 2 and removed the 'Form Grade Location' call out on Sheet 3 to be consistent with Sheet 1.		
APPROVED BY DESIGN METHODS ENGINEER		
<b>SINGLE-GRATE BARRIER INTAKE, CIRCULAR</b>		

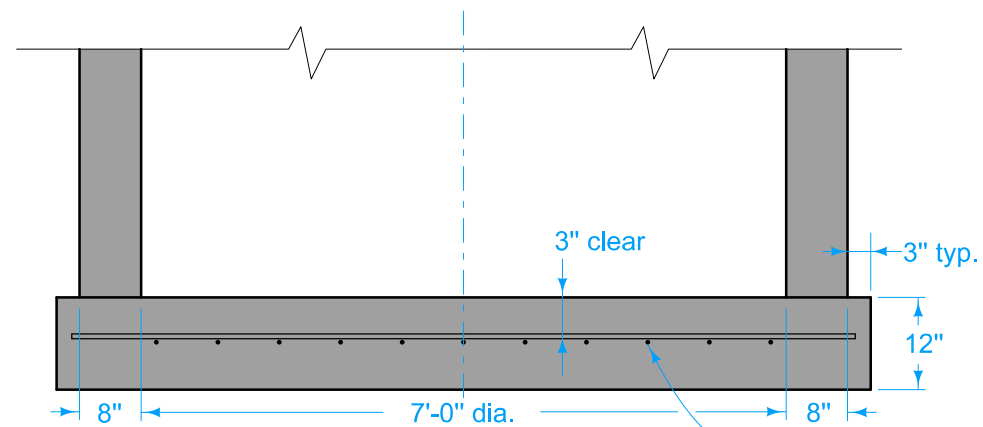


LID REINFORCING BAR LIST					
EPOXY-COATED					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	Lid, Longitudinal	—	8	6'-2"	51
5a2	Lid, Transverse	—	8	5'-0"	42
4b1	Lid Hoop	⌢	4	4'-9"	13
4b2	Lid Hoop	⌢	6	4'-7"	18
5c1	Intermediate Lid	—	3	3'-0"	9
5c2	Intermediate Lid	—	2	3'-3"	7
5c3	Intermediate Lid	—	2	5'-9"	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	

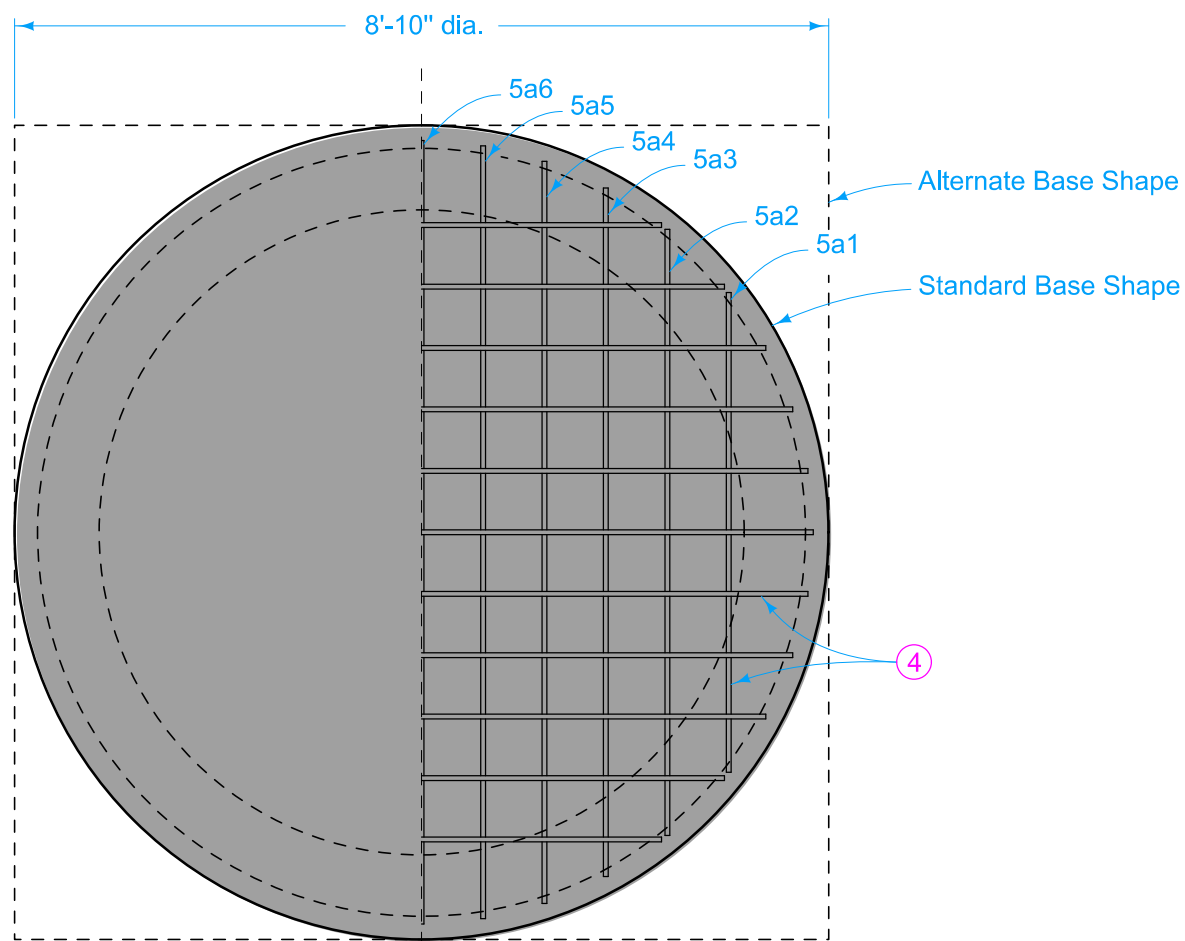


LID QUANTITY SUMMARY (DEEP)	
Concrete - Lid	1.2 CY
Concrete - Intermediate Lid	2.1 CY
Epoxy Coated Reinforcing Steel	229 LB

	REVISION
	6   10-16-18
	<b>SW-548</b>
SHEET 5 of 6	
REVISIONS: Changed the 'Form Grade Location' on Sheet 2 and removed the 'Form Grade Location' call out on Sheet 3 to be consistent with Sheet 1.	
APPROVED BY DESIGN METHODS ENGINEER 	
<b>SINGLE-GRATE BARRIER INTAKE, CIRCULAR</b>	



PROFILE



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

- ④ #5 at 8 inch centers each direction or equivalent welded wire fabric.
- ⑤ 4el bar length to be pipe diameter plus 12 inches. Place 4el bar inside of vertical reinforcing. Shift main reinforcing bars as required for pipe entrance. Filed cut bars to maintain 3 inch clearance from bottom. Maintain 2 inch clearance from face of walls. Four 4el bars required per pipe entrance.

	REVISION	
	6	10-16-18
<b>STANDARD ROAD PLAN</b>		<b>SW-548</b>
		SHEET 6 of 6

REVISIONS: Changed the 'Form Grade Location' on Sheet 2 and removed the 'Form Grade Location' call out on Sheet 3 to be consistent with Sheet 1.

*Shawn Miller*  
APPROVED BY DESIGN METHODS ENGINEER

**SINGLE-GRATE BARRIER INTAKE,  
CIRCULAR**