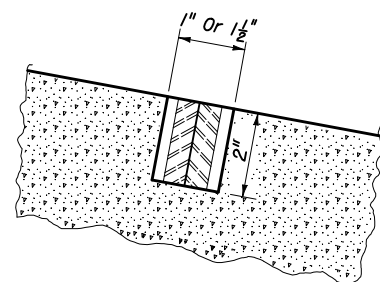


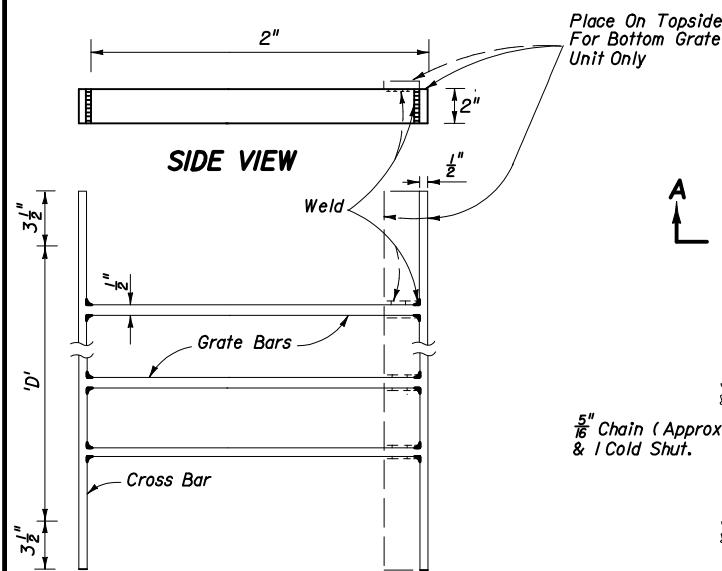
**TOP VIEW  
GRATE TYPE NO. 1**

Pipe Size	Grate Bars Req'd.	Grate LB.
15"	2	28.93

Bars to be evenly spaced across dimension 'D'.  
All bars 1/2" x 2".



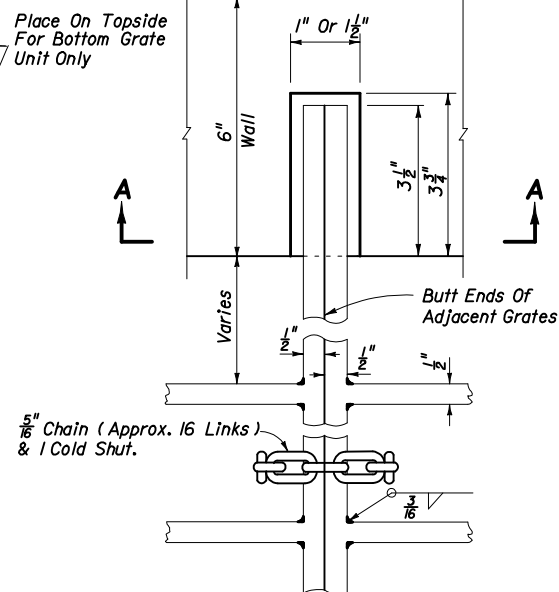
**SECTION AA**



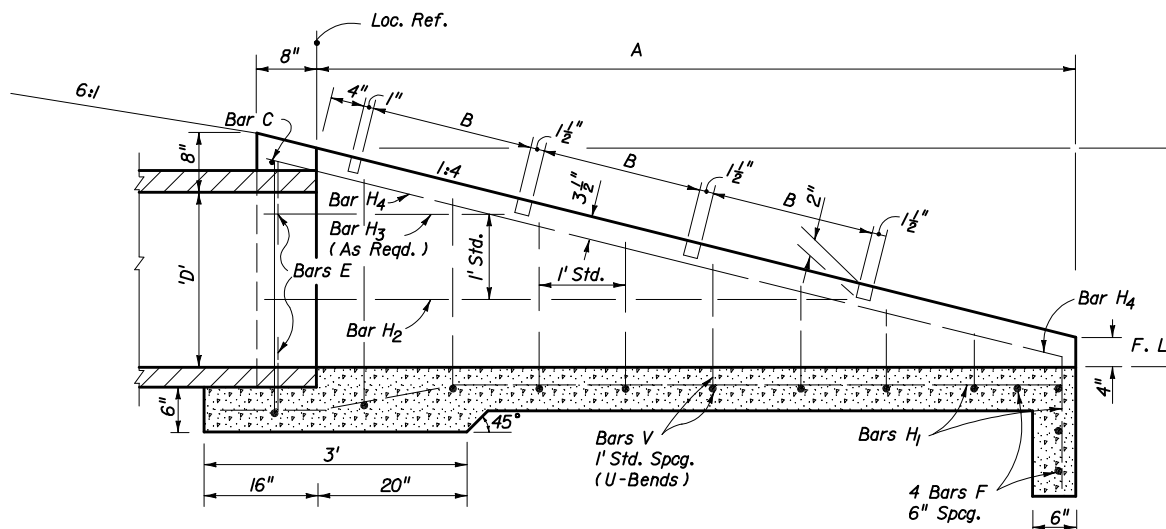
**TOP VIEW  
GRATE TYPE NO. 2**

Pipe Size	Grate Bars Req'd.	Grate LB.
18"	3	33.69
24"	4	43.63
30"	5	53.55

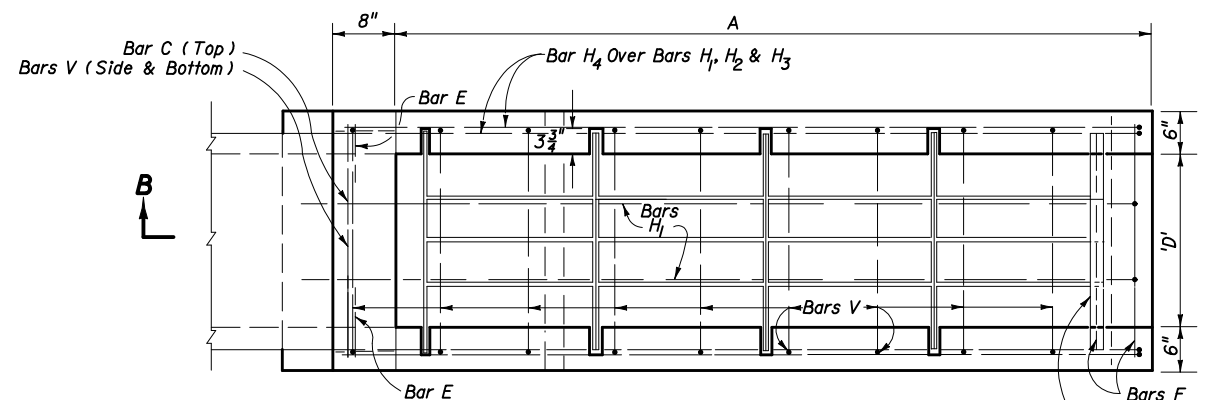
Bars to be evenly spaced across dimension 'D'.  
All bars 1/2" x 2".



**TOP VIEW  
GRATE, SEAT, WELD & CHAIN DETAIL**



**SECTION BB**

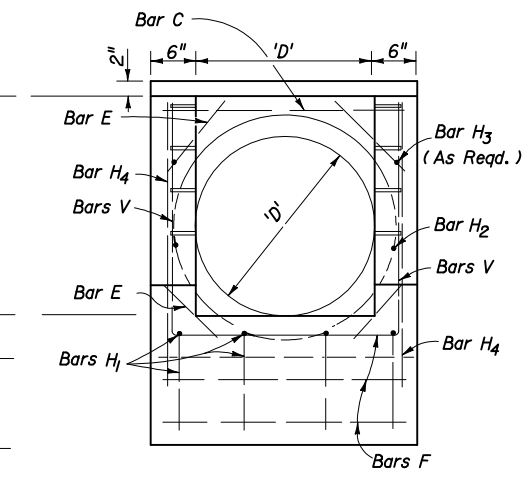


**TOP VIEW**

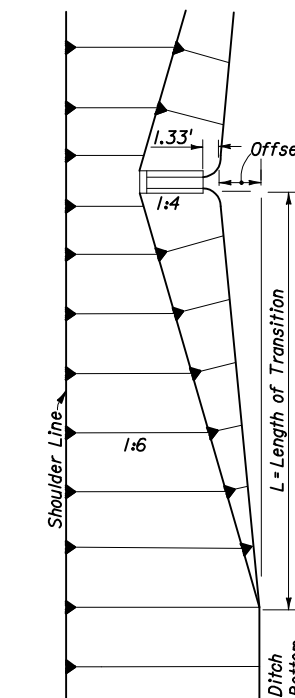
Slope	Pipe D	A	B	Class I Concrete (CY)	Reinf. Steel (Lbs.)	Number Of Grates Req'd		Total Grate Wt. (Lbs.)	Sodding (SY)	Slope Transition	
						Type No. 1	Type No. 2			Offset	L
4:1	15"	5.67'	2.38'	0.85	56	2	0	57.86	15	4.2'	42'
	18"	6.67'	1.875'	1.01	73	0	3	101.08	16	4.8'	48'
	24"	8.67'	1.875'	1.65	97	0	4	174.52	19	5.8'	58'
	30"	10.67'	1.875'	2.33	129	0	5	267.75	21	6.9'	69'

**GENERAL NOTES**

- This endwall is to be used only in the clear zone for the drainage of medians and other areas having low design velocities and negligible debris. Grates exposed to salt water shall be designated in the plan as Alternate G.
- Reinforcing steel: All bars are size #4. Spacings shown are center to center. Laps to be 12" minimum. Clearance is 2" except as noted. Square welded wire fabric (two cages max.) having an equivalent cross sectional area (0.20 sq. in.) may be substituted for bar reinforcement.
- Grates shall be ASTM A242/A242M, A572/A572M or ASTM A588/A588M, Grade 50 steel, and galvanized in accordance with Section 962-7 of the Standard Specifications.
- Endwall to be paid for under the contract unit price for U-Endwall, Each. Payment shall include cost of concrete, reinforcing steel, grate, and accessories. Quantities shown are for estimating purposes only.
- Sod slopes 5' each side and above endwall. Sodding to be paid for under contract unit price for sodding.
- Precasting of this endwall will be permitted. Precast units shall conform to the dimensions shown or in accordance with approved approved shop drawings. Request for shop drawing approval shall be directed to the State Drainage Engineer. Use Index No. 201 for opening and grouting details.
- Concrete meeting the requirements of ASTM C 478 (4,000 P.S.I.) may be used in lieu of Class I Concrete for precast units manufactured in plants which are under the Standard Operating Procedures for the inspection of precast drainage products.



**END VIEW**



**FRONT SLOPE TRANSITION AT ENDWALL**