

NOTES

1. All Riprap channels to be grouted unless otherwise approved by the City Engineer.
2. Riprap shall have a specific gravity of 2.50 or 156 lbs./cu.ft.
3. Size 't' = 2.0 x (specified stone diameter).
4. Z = not less than 2.5.
5. The above are minimum requirements only and are not to be considered as a substitute for a complete hydraulic design reflecting local parameters.

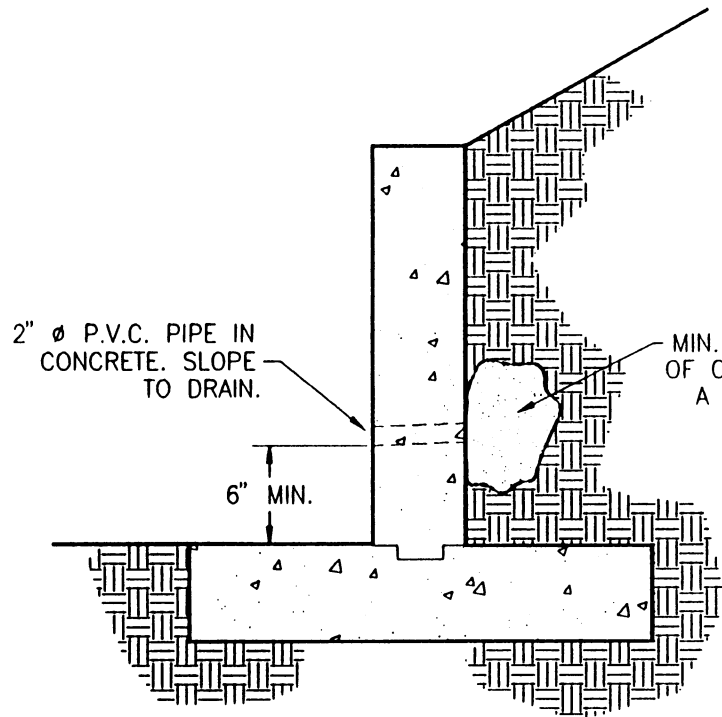
NOTE

ALL RIPRAP CHANNEL DESIGN SHALL BE IN ACCORDANCE WITH THE CITY OF COLORADO SPRINGS / EL PASO COUNTY DRAINAGE CRITERIA MANUAL.

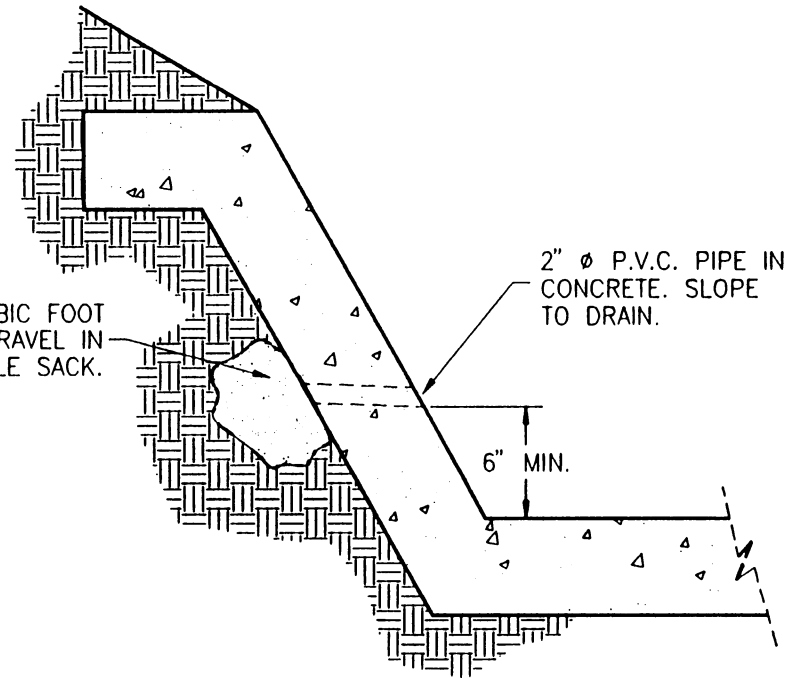
CITY OF COLORADO SPRINGS

Riprap Channel Detail

approved by:	<i>Ray R. Hayes</i>	City Engineer
Drawn BY:	J20	DATE 04/93
		STD. D-12



WINGWALL / RETAINING WALL

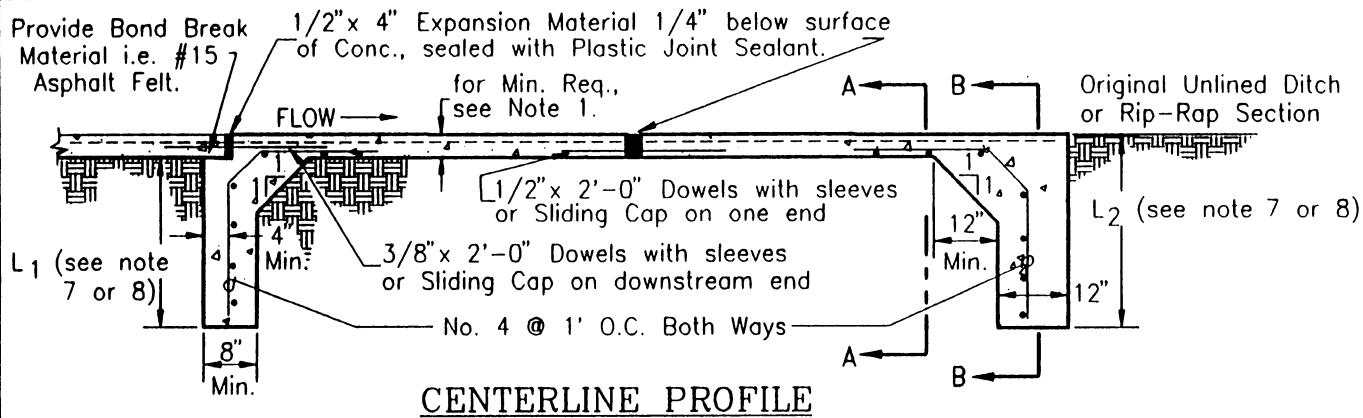


CONCRETE CHANNEL

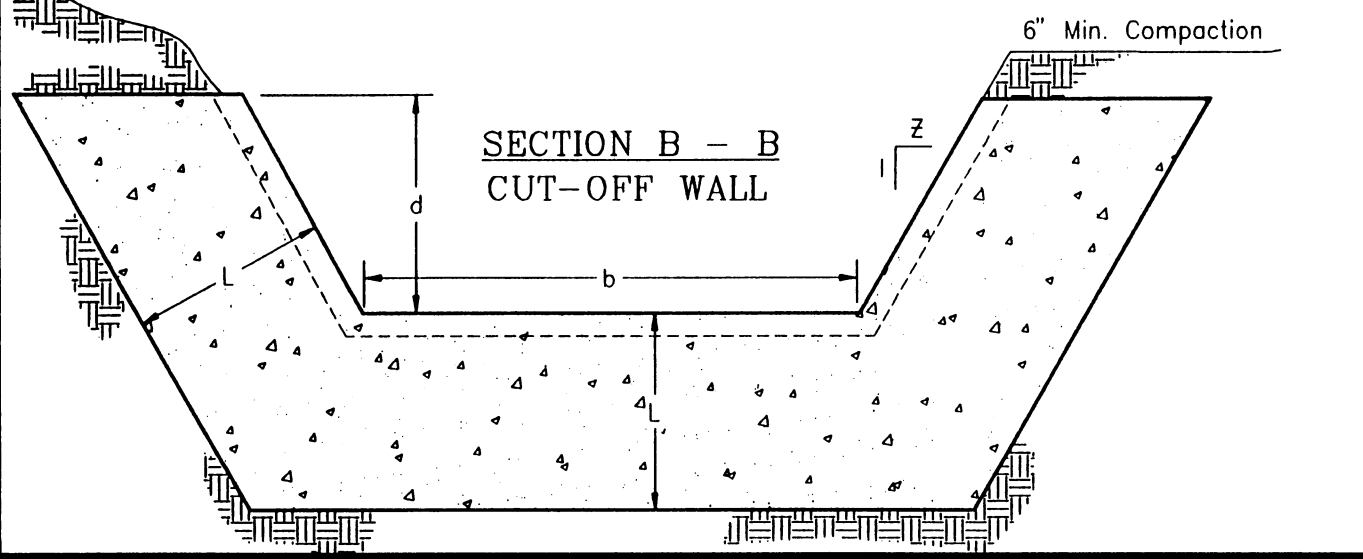
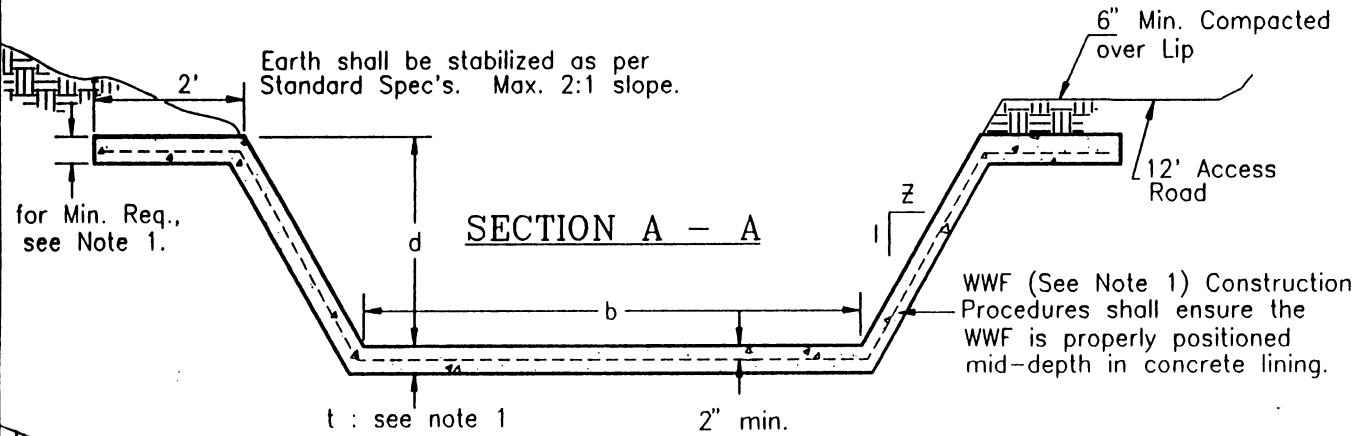
NOTES

1. NO. 40 galvanized steel screen and filter fabric to be used with weep holes >2"
2. Miter P.V.C. Pipe flush with concrete.
3. Additional volume of coarse gravel or a complete rock underdrain system may be required if local groundwater and/or soil conditions dictate.
4. Spacing to be determined by the engineer upon final design.

CITY OF COLORADO SPRINGS			
Weep Hole Detail			
approved by:	<i>Ray E. Hayes</i>	City Engineer	
Drawn BY:	J2	DATE:	03/97
		STD.	D-13



CENTERLINE PROFILE



NOTES

1. 4" Concrete Channel with 6x6, 4.4 Welded Wire Fabric (WWF). If 'b' is greater than 4', floor thickness shall be minimum 6" with #4 @18" E.W. This is a minimum design. Soil investigations or detailed hydraulic or structural analysis may determine that greater Concrete thickness and/or reinforcing steel is required.
2. 1/2" Contraction Joints shall be a minimum of 20' spacing unless specified otherwise by the Engineer.
3. Expansion Joints shall be a maximum of 100' spacing unless specified otherwise by the Engineer (see D-15).
4. Concrete shall be Type II, 4000 psi, with air entrainment @ 6% (+1,-2) in accordance with Sections 612 and 613.
5. The Surface shall be that of a Broom Finish.
6. Z = not less than 1.0
7. L₁ = 3'- 6" and L₂ = 6'- 0" min. if Design Flow is Supercritical.
8. L₁ = 2'- 6" and L₂ = 4'- 0" min. if Design Flow is Subcritical.
9. See D-13 Weep Hole Detail.
10. Cut-off Wall spacing to be Max. 200 - 250 feet, typ.

CITY OF COLORADO SPRINGS			
Concrete Channel Detail			
approved by:	<i>Ray R. Haynes</i>	City Engineer	
Drawn BY:	J2	DATE: 05/93	STD. D-14