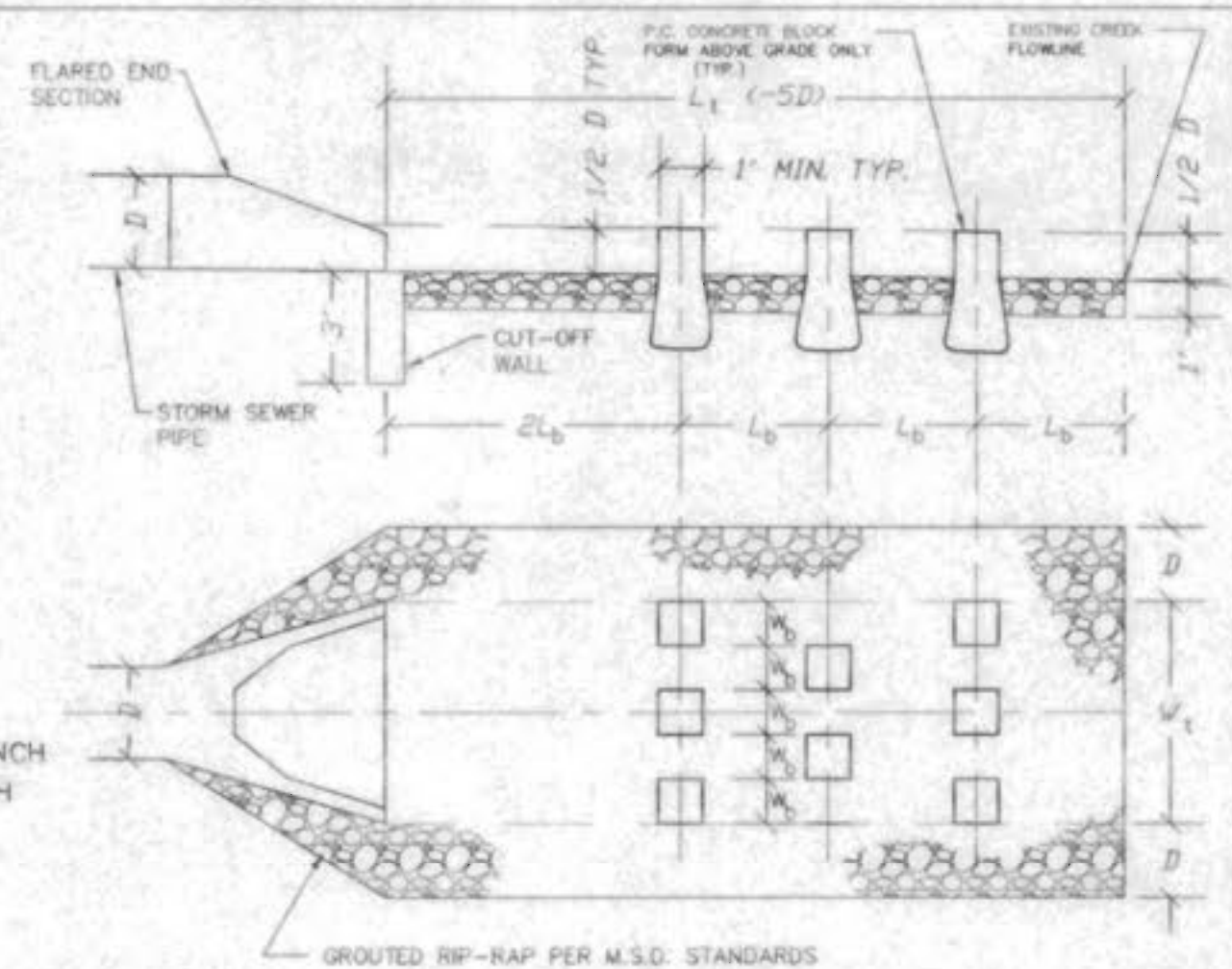


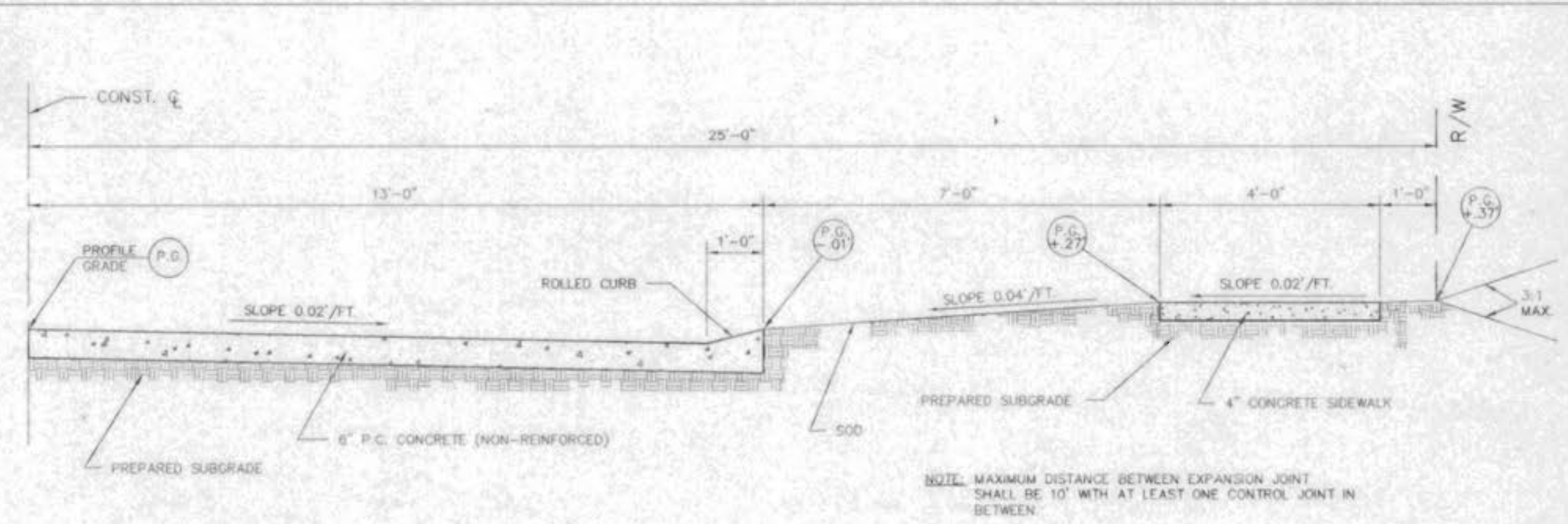
ENERGY DISSIPATOR DESIGN - TYPICAL SITUATION

- 30" RCP FLOWING FULL, Q=38 CFS, V=8 FPS
- 5' GROUTED RIF-RAP CHANNEL Q=38 CFS D=1.2' V=4.5 FPS
- THIS IS 1/2 OF THE PIPE DIAMETER
- WHEN THE FLOW HITS THE 1ST SERIES OF BLOCKS THE EFFECTIVE CHANNEL WIDTH BECOMES 2 FEET WIDE FOR A DEPTH OF 1.2 FEET.
- 2' CHANNEL 1.2' DEEP Q=20 CFS V=3.9 FPS ABOVE THE TOP OF THE BLOCKS. THE CHANNEL WIDTH BECOMES $5 \times (1.2) = 9.5' \approx 10'$ FOR THE BALANCE OF THE FLOW = 18 CFS, D=0.50', V=3.1 FPS. SINCE THE FLOW IS $\approx 1/2$ THE AVERAGE V=3.5 FPS.
- THE TWO (2) ADDITIONAL ROWS OF BLOCKS PROVIDES ADEQUATE ADDITIONAL PROTECTION FOR ENERGY DISSIPATION AND VELOCITY REDUCTION IN NON-UNIFORM FLOW AREAS.
- THE ABOVE APPLIES IN ALL CASES WHERE THE TRENCH WIDTH EXCEEDS TWICE THE PIPE DIAMETER. THE BLOCK WIDTH EXCEEDS 2/3 OF THE PIPE DIAMETER AND THE TRENCH LENGTH EXCEEDS FIVE (5) PIPE DIAMETERS.

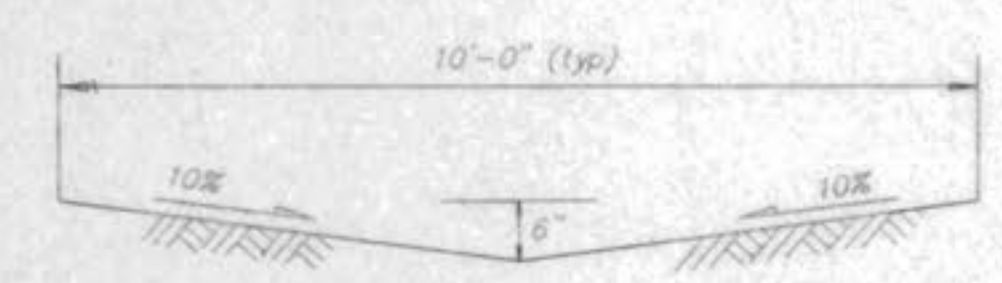
DIA. PIPE D	L ₁ - LENGTH TRENCH	L ₂ - LENGTH BETWEEN	W _b - BLOCK WIDTH	W _t - TRENCH WIDTH
12"	10'	2'	1'	5'
15"	10'	2'	1'	5'
18"	10'	2'	1'	5'
24"	10'	2'	1'	5'
30"	15'	3'	1'	5'
36"	15'	3'	1.5'	7.5'
48"	20'	4'	1.5'	7.5'
60"	25'	5'	1.5'	7.5'
72"	30'	6'	2'	12'



ENERGY DISSIPATOR DETAIL
 NOT TO SCALE

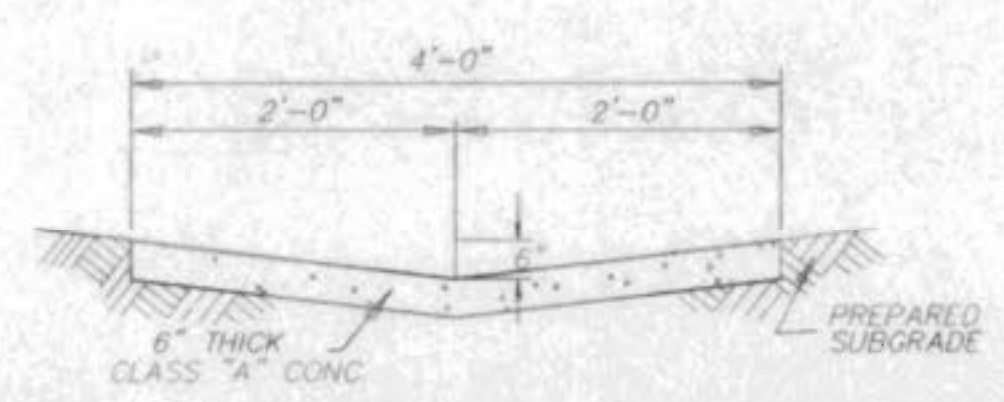


TYPICAL PAVEMENT HALF SECTION
 NOT TO SCALE

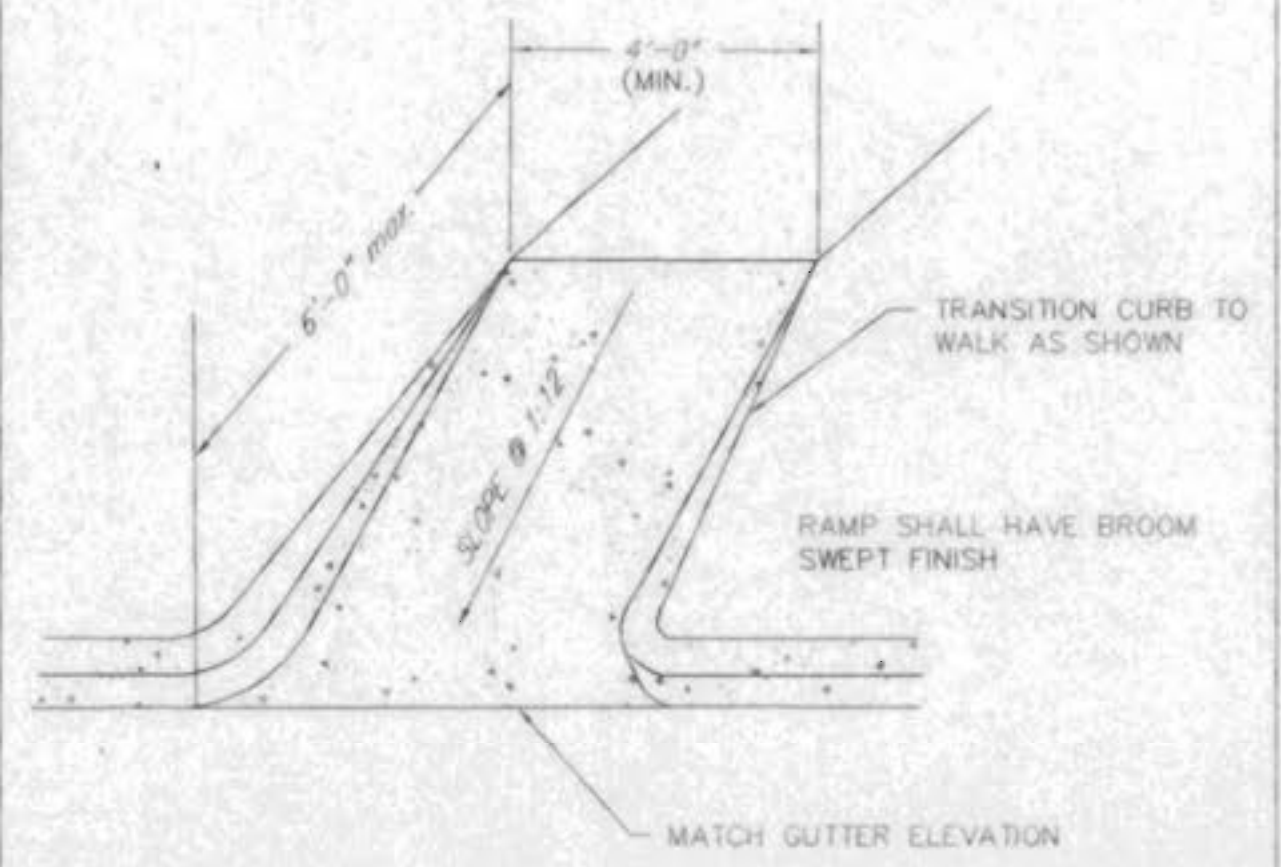


Scale at 1.0% min. grade with a max. "Q" of 4.0 c.f.s.
 Depth= 0.42'
 Velocity= 2.10 f.p.s.
 Scale at 10.0% max. grade with a max. "Q" of 4.0 c.f.s.
 Depth= 0.28'
 Velocity= 5.05 f.p.s.

TYPICAL CROSS SEC. OF RELIEF SWALES
 (See required easements on the Record Plat)
 NOTE: Sod all relief swales.



CONCRETE SWALE DETAIL
 NOT TO SCALE



CONCRETE HANDICAP RAMP
 NOT TO SCALE

ENGINEERS AUTHENTICATION
 The responsibility for Professional Engineering liability on this project is hereby specifically limited to the set of plans authenticated on each sheet by the Engineer's signature, original stamped Engineer's seal, and the original stamped date hereunder attached. All responsibility is disclaimed for all other plan sheets or sets involved in this project preceding this date and excludes all revisions after this date unless reauthenticated.

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