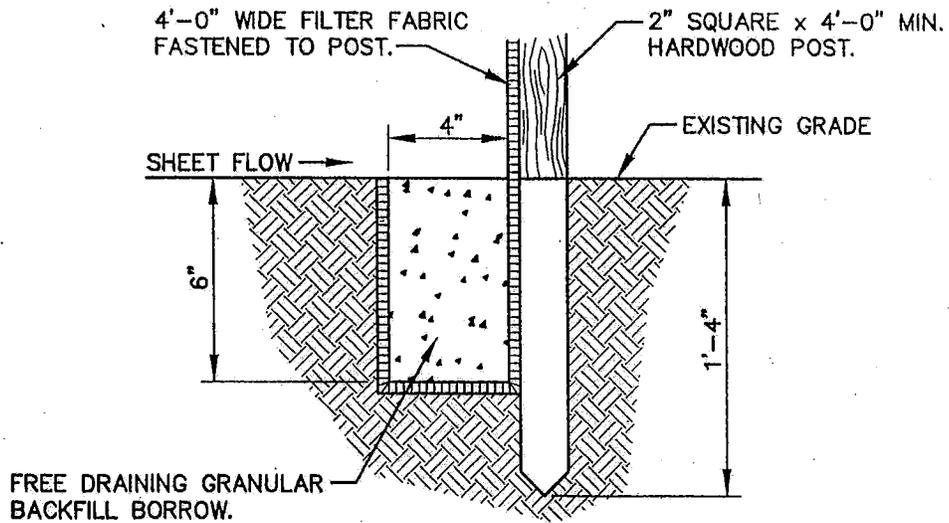
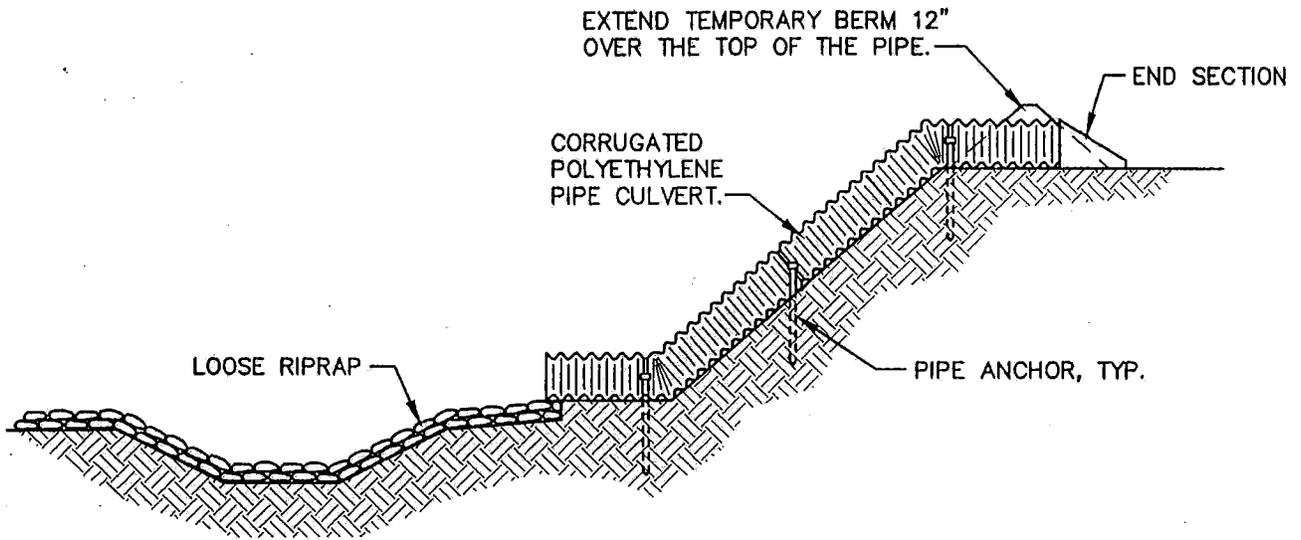


PERSPECTIVE VIEW

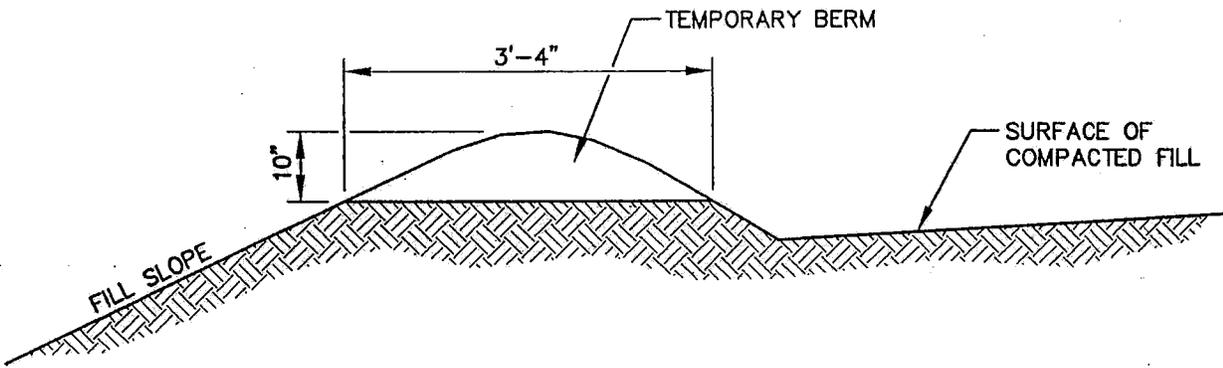


SECTION

TYPICAL SILT FENCE INSTALLATION



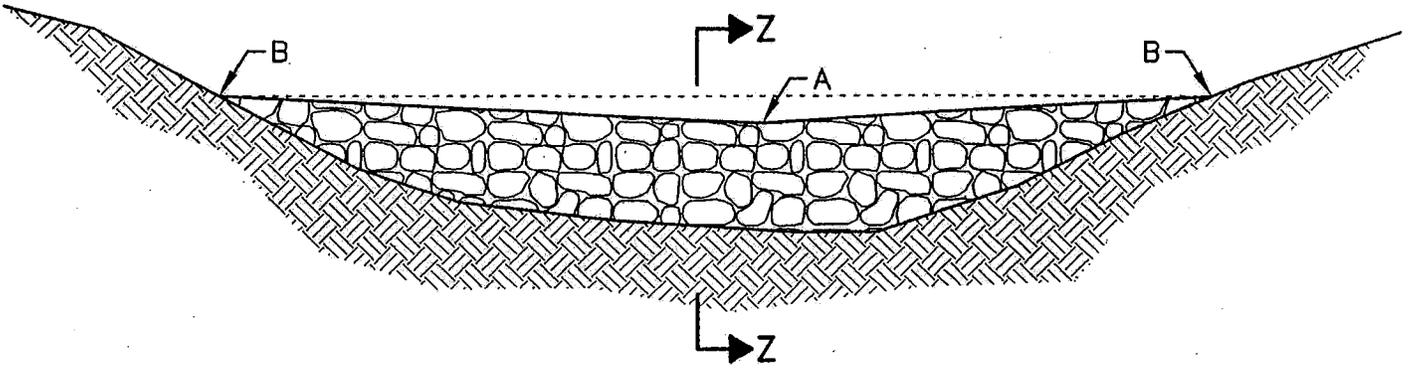
SLOPE DRAIN SECTION



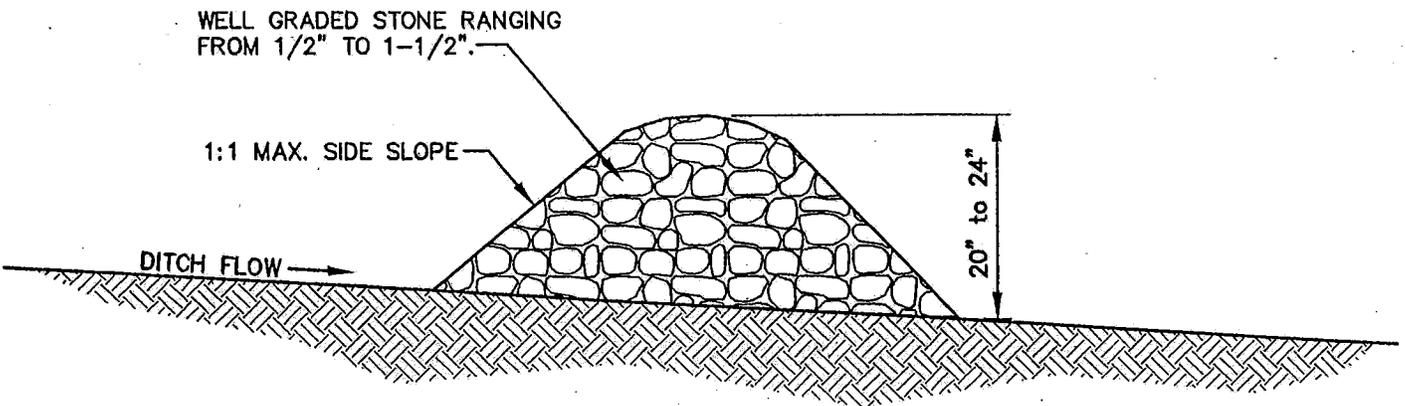
TEMPORARY BERM

TYPICAL SLOPE DRAIN INSTALLATION

CONSTRUCT THE CHECK DAM SO THAT POINT "A"
IS APPROXIMATELY 4" LOWER THAN POINT "B".

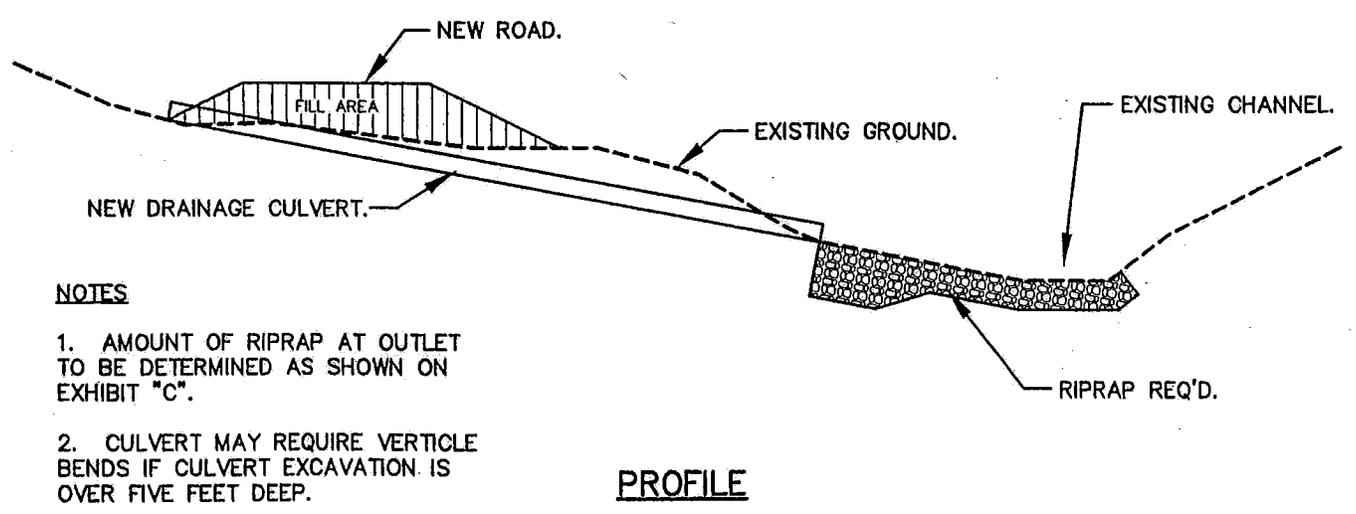
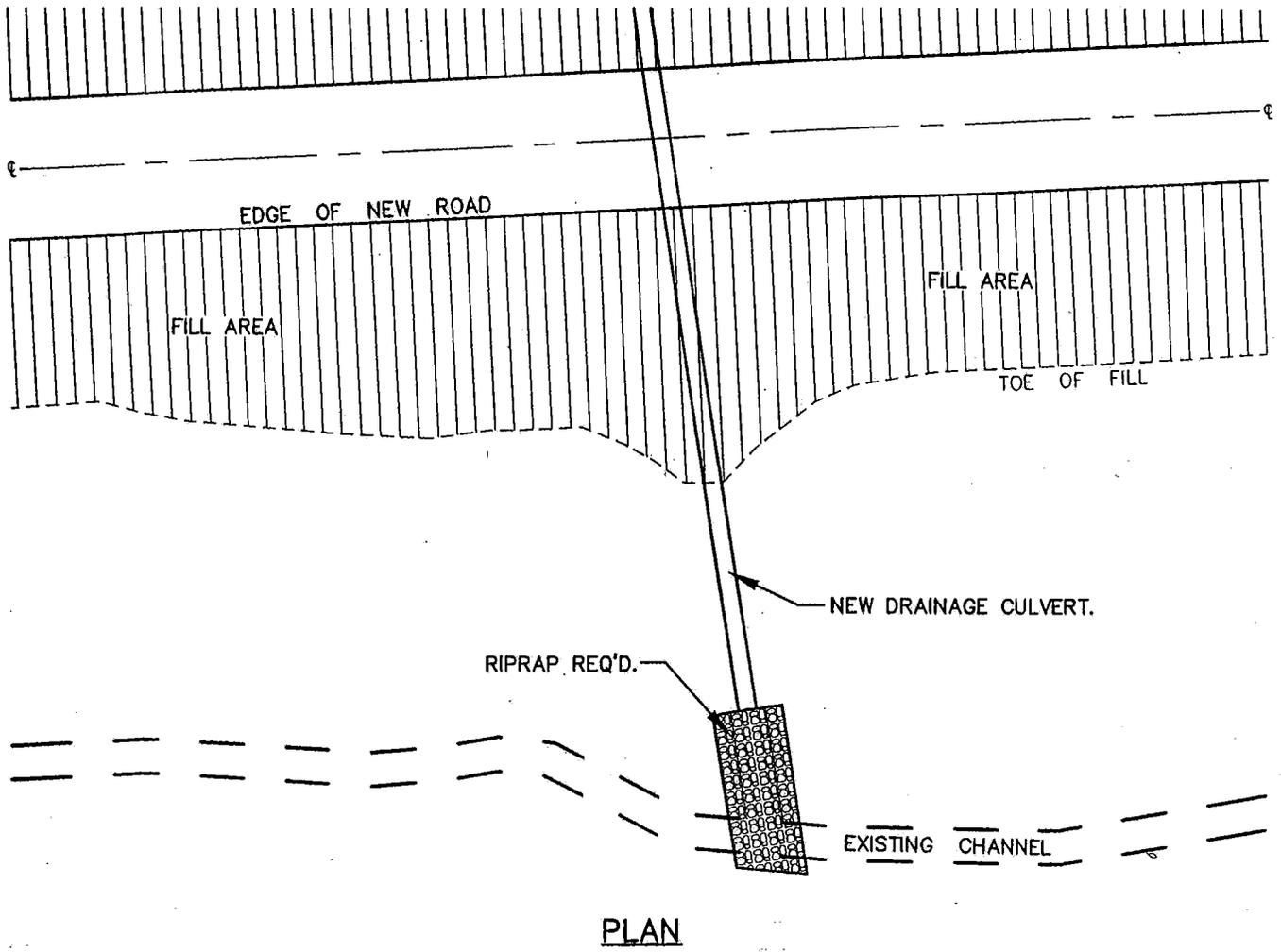


LONGITUDINAL SECTION



SECTION Z-Z

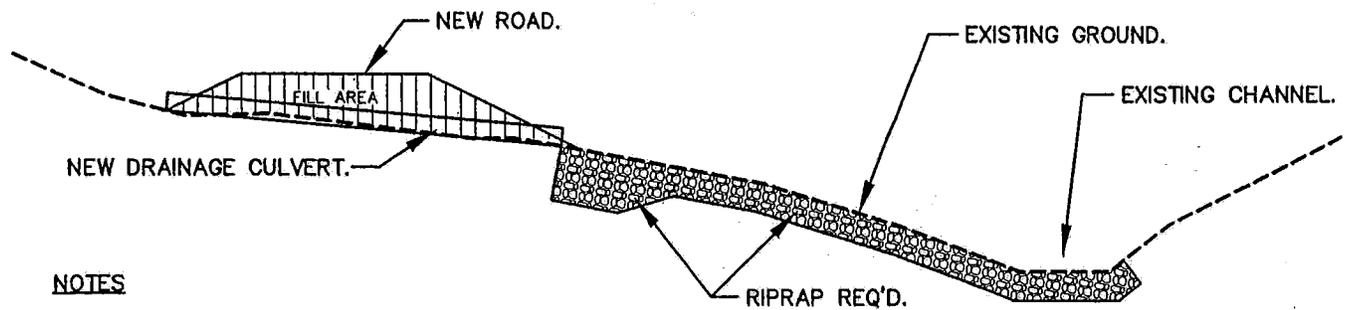
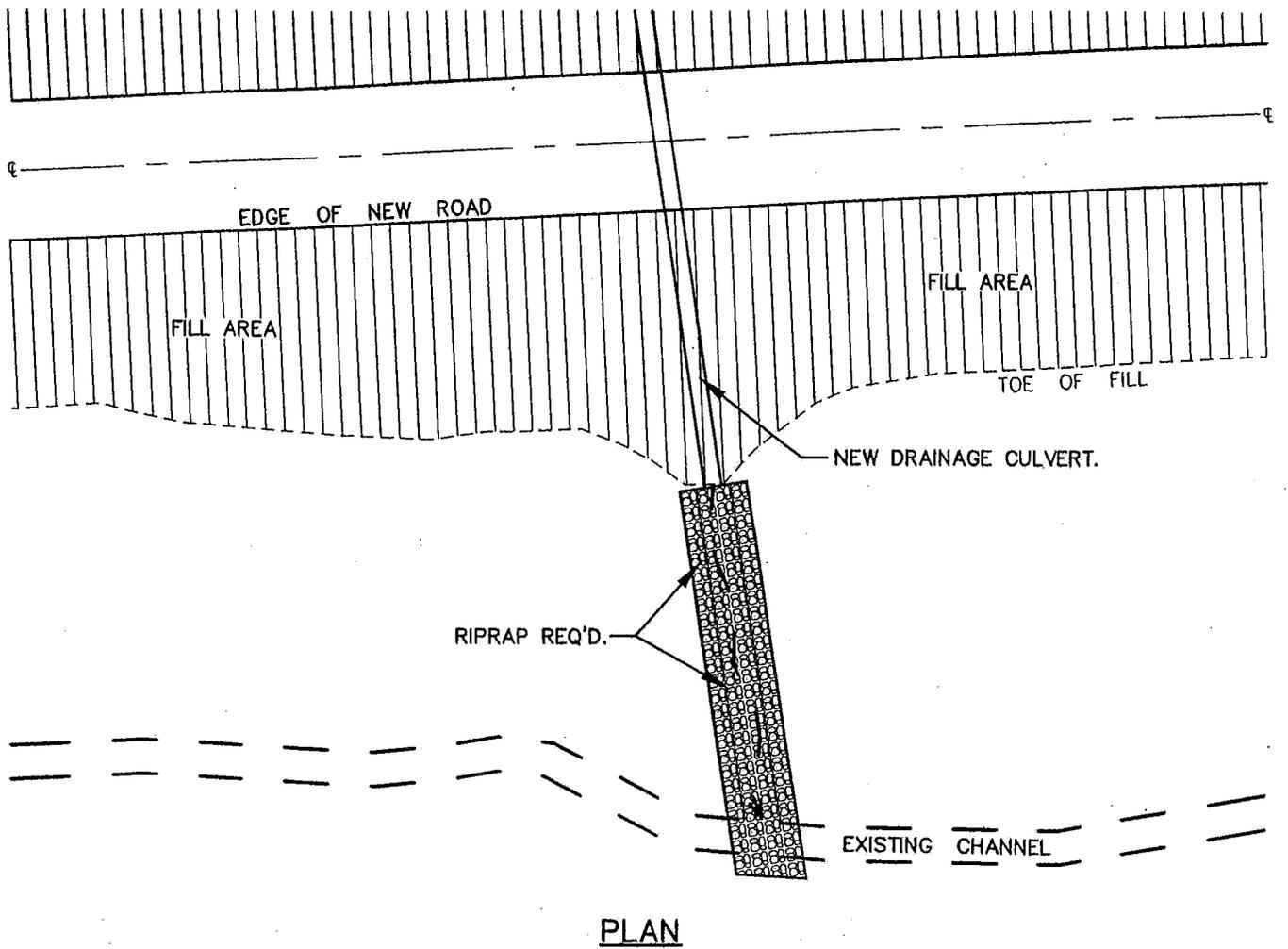
TYPICAL STONE CHECK DAM



NOTES

1. AMOUNT OF RIPRAP AT OUTLET TO BE DETERMINED AS SHOWN ON EXHIBIT "C".
2. CULVERT MAY REQUIRE VERTICLE BENDS IF CULVERT EXCAVATION IS OVER FIVE FEET DEEP.

EXHIBIT "B-1"
TYPICAL CULVERT INSTALLATION - UNSTABLE DRAINAGES



NOTES

1. AMOUNT OF RIPRAP AT OUTLET TO BE DETERMINED AS SHOWN ON EXHIBIT "C".
2. CULVERT MAY REQUIRE VERTICAL BENDS IF CULVERT EXCAVATION IS OVER FIVE FEET DEEP.

EXHIBIT "B-2"
TYPICAL CULVERT INSTALLATION - STABLE DRAINAGES

V = Velocity at the outlet of culvert.

$$T \text{ (thickness)} = D/4 + 1/2 V_0^2/2G$$

$$T \text{ min.} = 1.0' \text{ and } T \text{ max.} = 4.0'$$

$$L \text{ (length)} = 2D + 4 V_0^2/2G$$

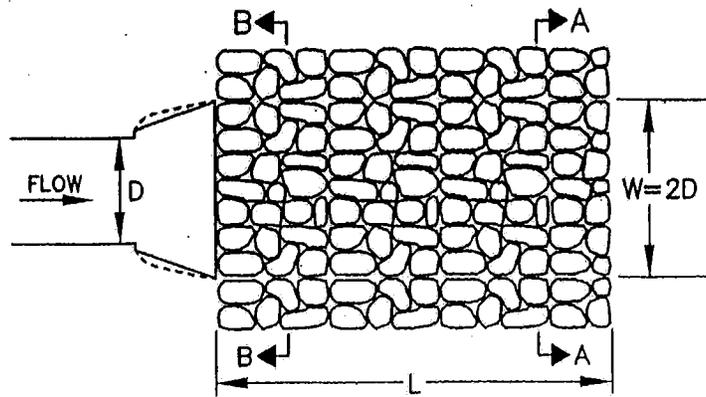
$$L \text{ min.} = 10' \text{ Desirable}$$

$$L \text{ max.} = 30' \text{ Desirable}$$

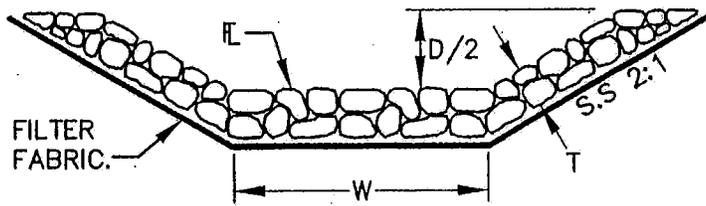
$$K \text{ min.} = 3.0' \text{ and } K \text{ max.} = 6.0'$$

NOTES AND LIMITATIONS:

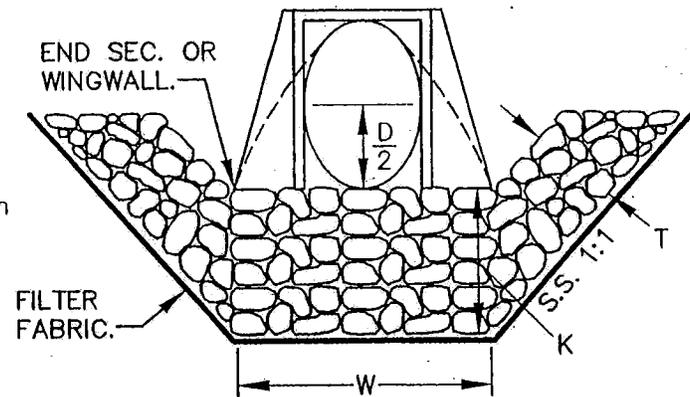
1. In areas where the soil is erodible and the sign of scouring is present, the riprap can be used when $V_0 \geq 4.0$ FPS and $V_0 \leq 15$ FPS.
2. For $V_0 > 15$ FPS, other means of energy dissipators shall be considered.
3. In areas where the soil conditioning is stable or the bed material is rocky, riprap might not be needed. The judgement and discretion of design is of vital importance in the implementation of riprap.
4. In case of R/W restriction or any other constraints, the length of riprap can be shorter than shown above.
5. In extreme cases, the minimum and maximum values of T and K could be different from the specified values above.



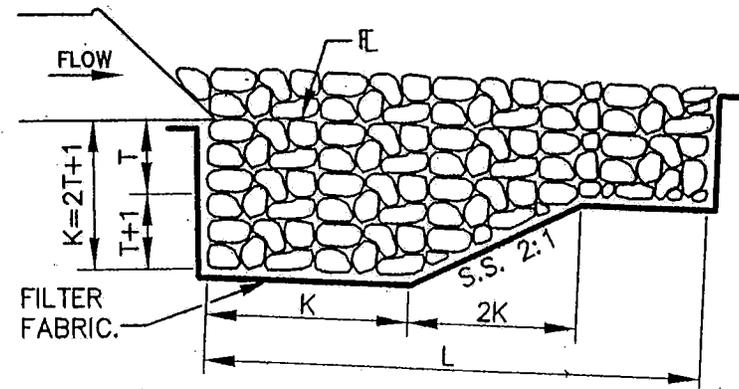
PLAN VIEW



SECTION A-A

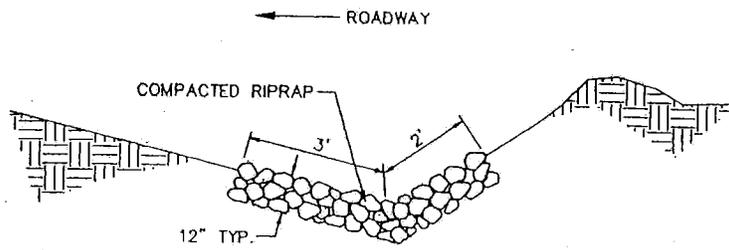


SECTION B-B



PROFILE

EXHIBIT "C"
GUIDELINE FOR LOOSE RIPRAP AT THE OUTLET OF DRAINAGE CULVERTS



RIPRAP LINED CUT DITCH