APPLICATION: Provide Full Height Headwalls for skewed and non-skewed culverts having a diameter of rise of 42" to 84" inclusive. Use Type "A" in culverts having a skew angle up to 45° and Type "B" when the skew angle is over 45°.

NOTES

DESIGN DATA: The following design data is assumed:

- Internal Angle of Friction of Backfill Soil, $\phi = 30°$
- Total Unit Weight of Backfill Soil = 100 psf
- Internal Angle of Friction (Drained), Foundation Soil, $\phi = 28°$
- Undrained Shear Strength (Cohesive), Foundation Soil, $s_u = 500$ psf
- Slope of Backfill = 2:1
- Concrete Class DCI - Compressive Strength = 4000 psi
- Reinforcing Steel - Grade 60 Minimum Yield Strength

Based on the assumed design data, the headwalls for the standard design achieve factored bearing resistances that are greater than their respective factored bearing pressures. If a backfill material with a higher internal angle of friction or a higher total unit weight is used or if a foundation soil with a higher drained internal angle of friction or a higher undrained shear strength is encountered, then the stability of the wall is satisfactory.

DETAILS AND QUANTITIES are shown for circular sections only. When used with reinforced elliptical concrete pipe or corrugated steel pipe grooves, calculate dimensions and quantities to conform to those listed for the nearest size circular pipe. Apply the dimensions established by vertical diameter to span. Round all calculated dimensions established by horizontal diameter to the nearest 1". Chamfer all exposed corners.

HEADWALL LOCATION: Determine by intersection of the embankment slope at the back of the headwall at point "K". Provide 2:1 slopes adjacent to the headwall.

PAYMENTS: Item 602 Concrete Masonry includes reinforcing.