
Where abrasion is anticipated, increase apron thickness to 7" minimum to provide 2" minimum reinforcement coverage.

Vary "D" of warped wall uniformly from that at cutoff wall to that at culvert for maximum "H" > 12'-0".

NOTES:

- Walls designed for 2'-0" surcharged earth density = 120 psf; equivalent fluid pressure = 36 psf.
- "D" of warped wall uniformly from that at cutoff wall to that at culvert for maximum "H" > 12'-0".
- Abrasion is anticipated increase apron thickness to 7" minimum to provide 2" minimum reinforcement coverage.
- Dimensions "L", "W", "H", "A", "E", "Angle of flare", and end "Slope" (as apply) are shown on the plans.

ALTERNATIVE WARPED WINGWALL

Use where additional protection to toe of embankment is required.

TYPICAL WITH STIFFENING BEAM

TYPICAL WITHOUT STIFFENING BEAM

PART LONGITUDINAL SECTION

TOP OF WALL

SLOPE APRON TO MATCH CHANNEL AND INVERT.

SECTION C-C

WARPED WINGWALLS

PLAN

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

BOX CULVERT

WARPED WINGWALLS

NO SCALE

D86A

2010 STANDARD PLAN D86A