



GOVERNMENT OF ANDHRA PRADESH  
**IRRIGATION & CAD DEPARTMENT**

From  
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To  
The Chief Engineer,  
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Dowlaiswaram.

L.NO.CE/CDO/CD1/DEE/MOD/KDS/GDS

Dt. 29.11.2011

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| 14-12-11 | SE    |          |
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|          | NTPA  | 25/12/11 |
|          | SUBDT | 104      |

23/12/11

Sir,

Sub: - Modernization of G.D.S/K.D.S-Guide lines for Box Culverts and Pipe Culverts - Reg.

It is to be informed that certain Guide lines for vetting of designs of Box Culverts and Pipe Culverts are prepared and h/w enclosed for following the uniform procedure in Modernization of Krishna and Godavari delta systems. The Box Culverts and Pipe Culverts may be approved at your end duly following the above Guide lines.

Encls: - As above

Yours faithfully,  
Sd/-(Dt: 29/11/2011),  
Chief Engineer,  
Central Designs Organisation  
Hyderabad.

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*W. Anjan* 29-11-11  
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## GUIDE LINES FOR BOX CULVERT

1. The vent size of the box shall be decided such that the area of the box is equal to the area of the canal section subjected to TEL calculations.
2. TELs are to be worked out.
3. Box may be provided in RCC M20 (minimum).
4. Class A loading is to be considered over the slab of the culvert.
5. For SLRB box culvert, 4.25m clear carriage way width with a overall width of 5.10m is to be adopted.
6. When class 'A' loading is considered, the dispersion width of the wheels is to be considered and the load per that area is to be considered as UDL over the entire width of the box. (when there is overburden on the box ). In case of only slab without overburden, wheel loads coming on to the slab are to be considered as point loads and analysis can be done accordingly.
7. The analysis of the box is to be carried out either through moment distribution method, staad; considering the loads and earth pressure for the walls.
8. Approach slabs of 3.5 m is to be provided on either sides of the road.
9. Necessary CC walls or fly wings are to be provided upto 3.5m length on u/s and d/s side on either side, i.e., to the end of approach slab.
10. Suitable transition from box on u/s and d/s side to are be provided to meet the normal canal bed width.
11. Wing walls/ warped wing wall may be provided considering the TEL calculations and the loss of head provided in the HPs of the canal.
12. Top width of the wing wall and return walls may be provided as 450mm. The minimum foundation depth below the CBL may be kept at 900mm and the thickness of the foundation Concrete is 450mm. (subject to scour depth calculations)
13. The return walls may be keyed a minimum length of 300mm in to the base.
14. Bearing capacity of the soils may be verified with the designed stresses.

### **GUIDE LINES FOR PIPE CULVERTS:**

In addition to the item 1,2,4,5 and 14 the following shall be kept in view.

1. The pipe shall be tested for the loads coming from over burden and class 'A' loading.
2. Suitable transitions with wings and return walls are to be provided on U/S and D/S of the canal.
3. Head walls for a length of 0.30m on either side of the pipe culvert are to be provided.

Sd(Dt:29/11/2011),  
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