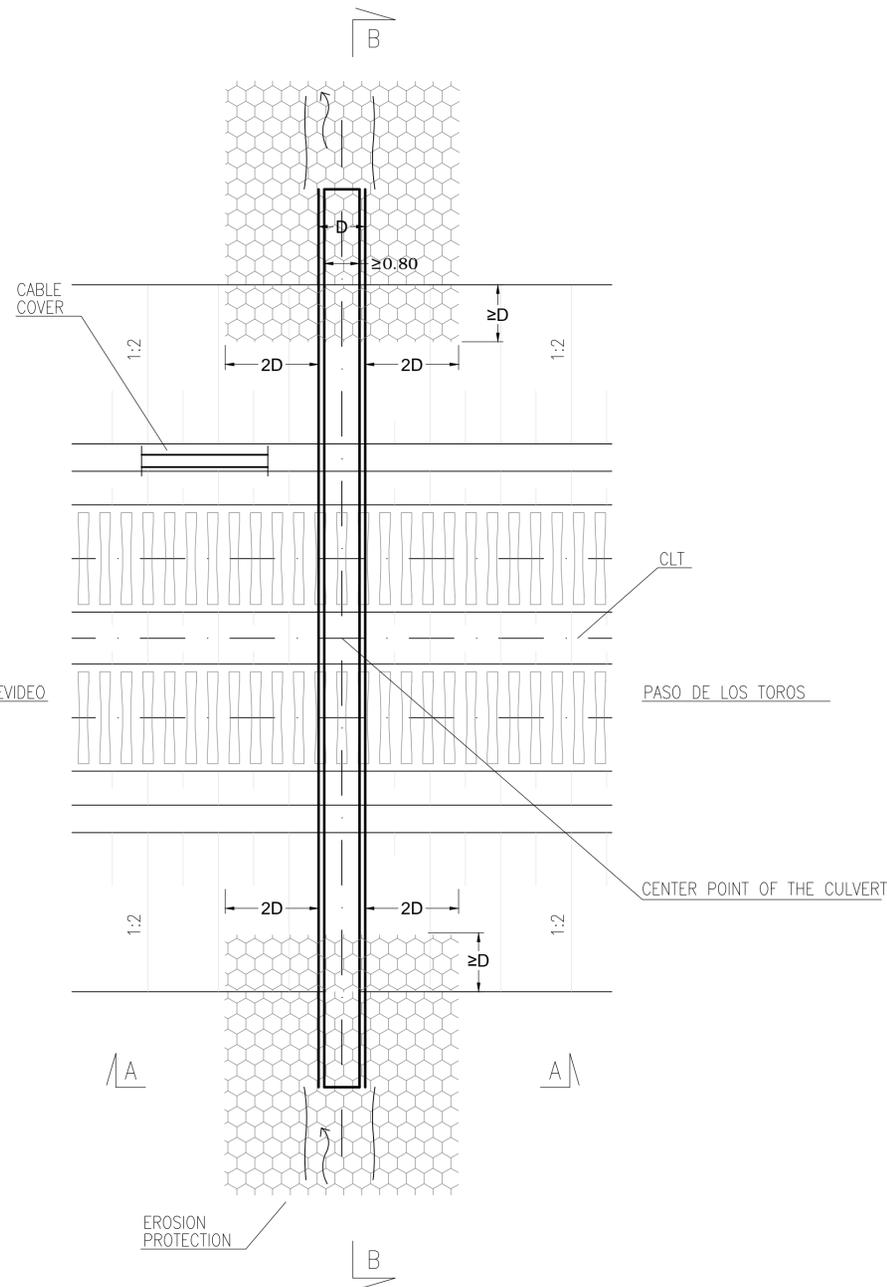


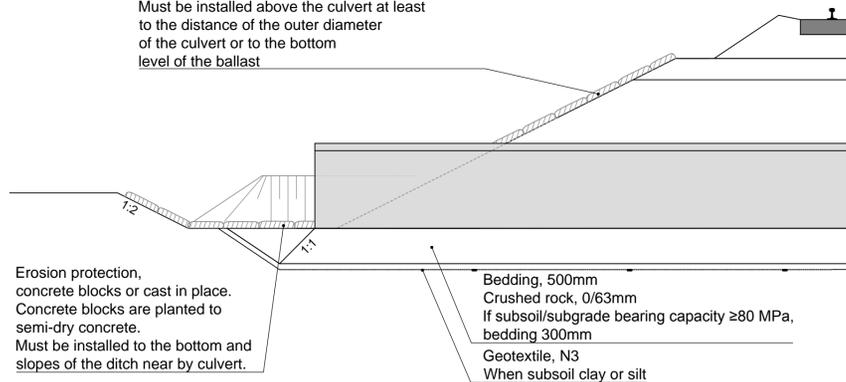
CULVERT <2 m 1:100



DET 1 1:50

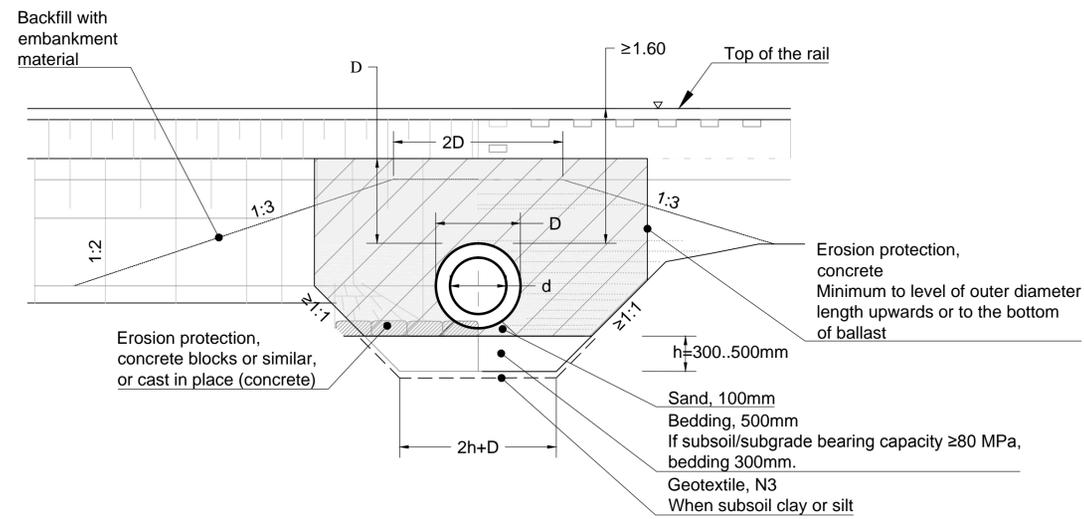
Erosion protection, concrete blocks or similar
Concrete blocks are planted to semi-dry concrete.

Must be installed above the culvert at least to the distance of the outer diameter of the culvert or to the bottom level of the ballast



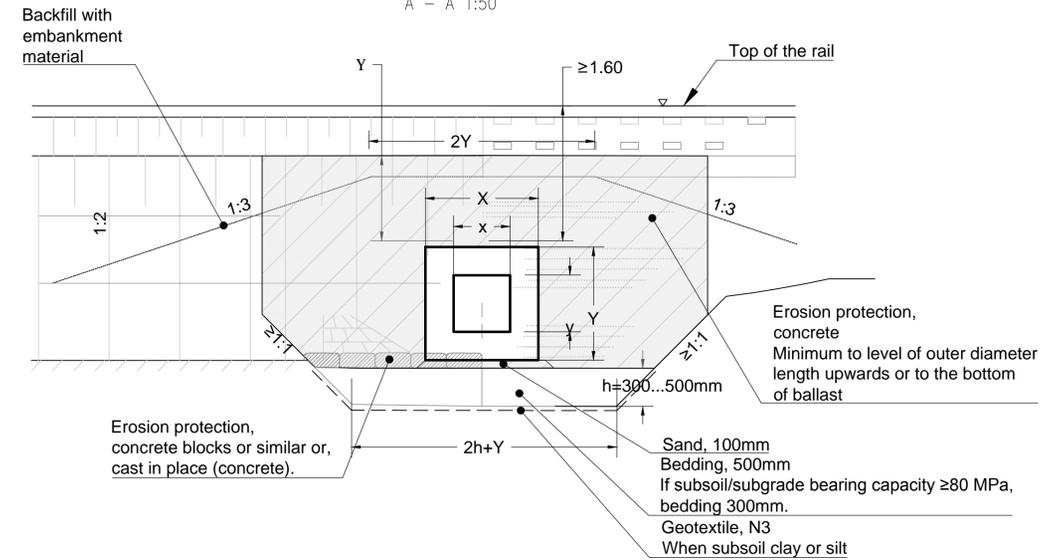
Concrete pipe

A - A 1:50



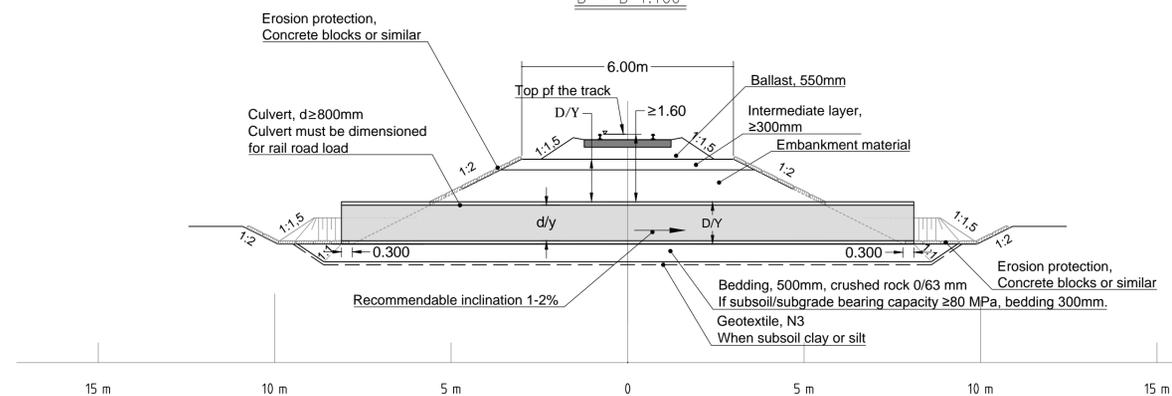
Concrete frame

A - A 1:50



Concrete pipe or frame

B - B 1:100



Concrete pipe wall thickness must be dimensioned to train load in detailed design phase.

Wall thickness for concrete frames

If distance between top of the rail and the top of the culvert is:

- in range 1,6-2m, the wall thickness is 400mm
- >2m, the wall thickness is 300mm

If distance between top of the rail and the top of the culvert is less than 1,60m the culvert must be constructed as small bridge.

Version 23.10.2017

Revision	Explanation	Date	Designer	Date	Acceptor
Customer	Project		Railway Project		
 MINISTERIO DE TRANSPORTE Y OBRAS PÚBLICAS		Design phase: Pre-engineering, Phase 2			
Supplier		Content: Concrete pipe and concrete frame culverts Preliminary general drawing			
		Scale: 1:100, 1:50			
Drawer	23.10.2017	HVa	Coordinate system: WGS 84 UTM 21 S, Local orthometric height		
Designer	23.10.2017	Auli Vanhoja	Elevation reference system		
Supervisor	23.10.2017	Heikki Akkanen	Railway line: Montevideo - Paso de Los Toros		
Accept.			Archive	Type	Number
Owner acc.					Rev. Sheet Sheet's total
					H3-001 - 1 1