



Image courtesy of CSPI

Slip-Lining Culvert Rehabilitation Method

This method is particularly suited to the galvanised steel pipe or pipe-arch culverts without invert lining suffering extensive environmental degradation both below and above water line. Slip-lining is a trenchless repair which does not require open excavations, removal of the damaged culvert, traffic detours etc.

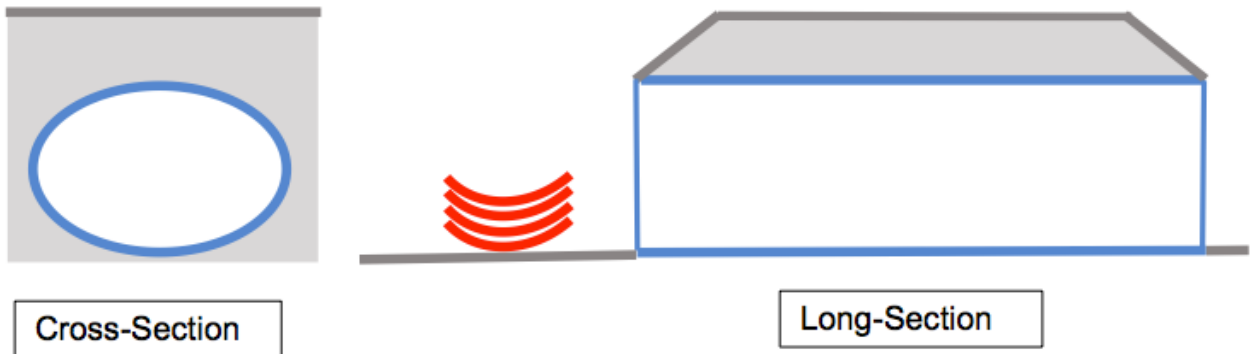
The conditions necessary for the successful application of the slip-lining repair method are:

- Spare hydraulic capacity of the culvert, allowing for a 300-400mm reduction in both width and height
- Maximum wall deformation of the repaired culvert not exceeding 50mm
- Flat working platform with construction access at one end of the culvert

Slip-lining culvert repair is usually carried out in the following steps (adjusted to the requirements and limitations of the particular site):

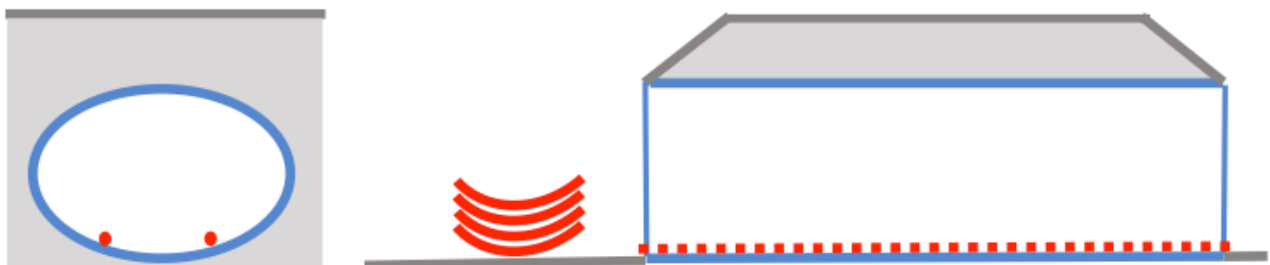
Step 1

Design and deliver new culvert liner with the cross-sectional dimensions 300-400mm smaller than the culvert being repaired.



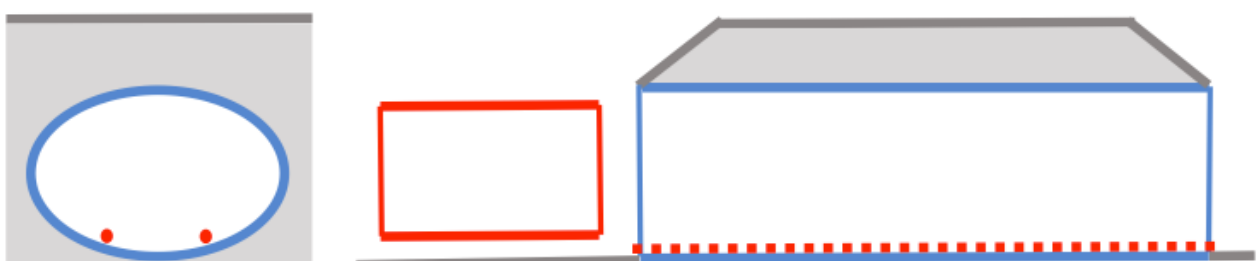
Step 2

Install the rails (25NB Duragal CHS or similar sections) secured to the invert of the culvert being repaired.



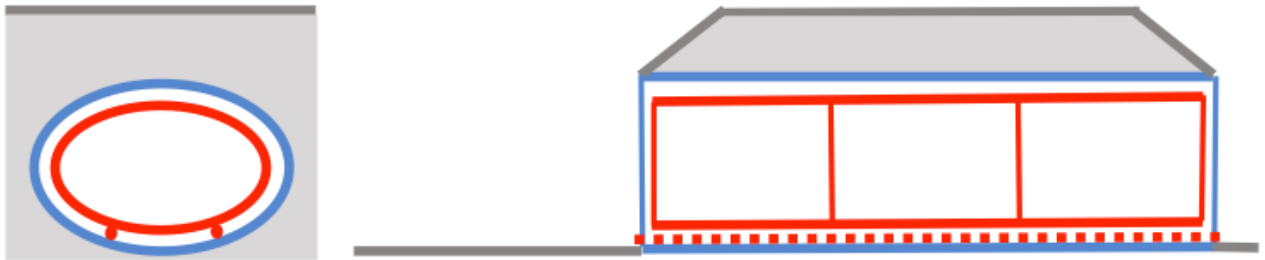
Step 3

Assemble new culvert liner (full length or in segments) on the working platform outside the culvert being repaired.



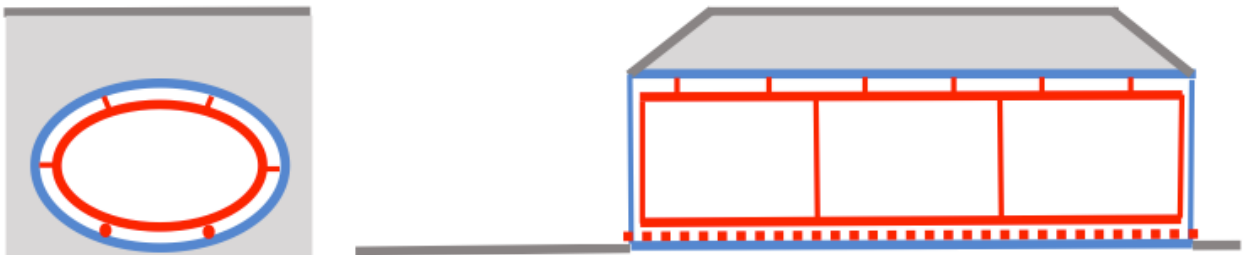
Step 4

Slide the new culvert liner (full length or in segments) inside the culvert being repaired on CHS rail.



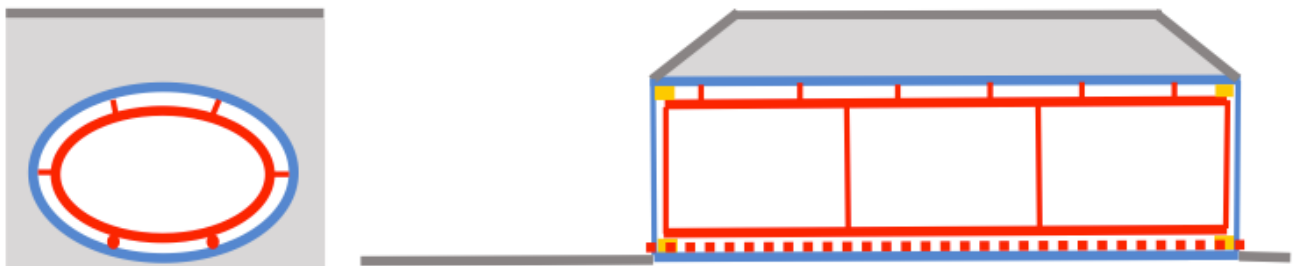
Step 5

Secure the new culvert liner in place by packing off the walls of the culvert being repaired.



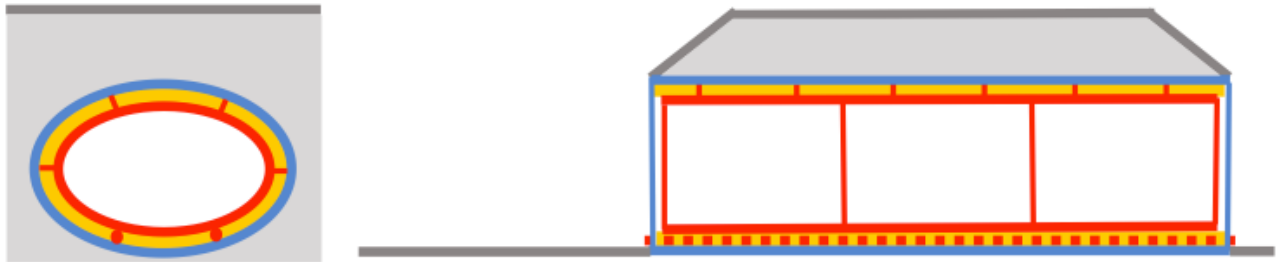
Step 6

Seal or mortar pack the perimeter gap between the new culvert liner and culvert being repaired at both ends.



Step 7

Grout the full length of perimeter gap between the new culvert liner and culvert being repaired (in one operation or in 2-3 lifts).



CSP Pacific are in a position to write detailed site-specific instructions for the slip-lining repair (including the grouting specification and quality monitoring) and provide on-site installation advice to the Contractor.