Design Procedures

(iii) Decrease the density of the floodplain vegetation to compensate for the effects of riparian vegetation.

(iv) Construct a wider floodplain on one or both sides of the proposed meandering channel.

Not all of the above options are available in every case. In any event, the options should be discussed with the appropriate bush care, vegetation management, waterway or parks officers as the case may be. Chapter 4 provides further details and discussion.

Vegetation around culverts and bridges should allow flood waters to flow freely from the culvert or bridge opening to the floodplain and visa versa.

Once again, check that the proposed location of the channel allows the floodplain to drain freely into the channel.

Step 10.

**Design of channel bed and the low flow channel**

The bed form within a watercourse basically depends on the composition of the bed substrate (in this case loose sediment or gravel), the size of the catchment and the existence or non-existence of bed vegetation. The following Guidelines on channel bed design are presented in the following two sections:

(a) which deals with non-vegetated beds (e.g. many river systems); and

(b) which deals with vegetated beds (e.g. most creek systems).

It is noted that even in closed canopy creeks, significant (though commonly sparse) bed vegetation usually exists. As a result, the pool-riffle system is limited to the width of the low flow channel rather than the full width of the channel bed (refer to the discussion on ‘Pool-riffle systems’ in Appendix A), while in most open canopy rivers, the pools and riffles often extend the full width of the channel bed.

Step 10.1 (a)

**Determine bed form**

(a) Watercourse with little or no bed vegetation, and pools and riffles widths approximately equal to the channel bed width

Mean channel width at riffles = 1.03 W
Mean channel width at pools = 0.96 W

Riffles are located at meander inflection points, therefore the riffle spacing is usually between 5.6 and 6.7 times the channel width (W).

Pools are located at the meander bends. Pools depths ($D_p$) are defined by:

$$D_p = \left( \frac{3.5}{R_p} \right) \left( 1 - \left( 1 - \left( \frac{W}{R_p} \right) \right)^{3.5} \right)$$