

Sediment

DIVERSION BANKS AND CONTOURS

Undiverted water flowing across a production area can cause significant erosion. The extent of soil loss will be dependant on in-field management. Poorly implemented diversion and contour banks can result in concentrated water flow, an increase in erosion at the end of the banks and degradation of the banks altogether.

Diversion banks divert runoff away from cultivation or buildings into stable waterways, natural depressions or water storages. They are usually constructed using a bulldozer to a height of at least 1 metre. Diversion banks are similar in many respects to perched waterways. Where the failure of a diversion bank would have serious consequences, its design should be based on an increased Average Recurrence Interval (e.g. 20 to 50 years).

Typical uses for diversion banks are as follows:

- above contour bank systems to intercept runoff from areas above cropping land
- in strategic locations within cultivated paddocks where they may be required to carry more runoff than a normal contour bank
- to divert runoff away from unstable areas (this option is only viable if there is a suitable disposal area for the runoff)
- to collect runoff from cross road drainage points and direct it to a waterway
- to collect runoff from small constructed or natural waterways and divert it into a larger waterway.

The aim is to reduce flow velocities by encouraging water flow to spread rather than concentrate.

It is desirable that the diversion bank channel and batters be stabilised with vegetation as soon as possible after construction. Species used for stabilising waterways or any pasture species suited to the local area can be used.

Contour banks are earthen structures constructed across cultivated slopes at intervals down the slope. They intercept run-off and safely channel it into stable grassed waterways, natural depressions or grassed areas adjacent to a paddock. Their function is to reduce slope length and to intercept runoff before it concentrates into an erosive force. They also trap much of the sediment from overland flow especially from rills and old gully lines. Any crop or stubble in a contour bank channel acts as a filter as runoff moves slowly along the contour bank channel.

On slopes lower than 5%, rows can be angled across the slope or run directly up and down slope, so they either discharge into the grassed disposal area or into the contour bank channel.

It becomes impractical to construct contour banks on slopes greater than 10 to 12%. Banks on steep slopes have very little capacity and the steep batter created to build the bank is vulnerable to erosion.

In horticultural row cropping situations parallel contour layouts are required. Straight rows are preferred for inter-row cultivation and spraying operations. In vineyards and trellised crops it is difficult to build trellises on curves. A detailed topographic survey is useful when planning a parallel contour layout. The use of relatively short rows and additional waterways improve the chances of obtaining a suitable layout.

Information in this fact sheet has been obtained from the following resource and is gratefully acknowledged.

Carey Bruce and Stone Barry (2004). Soil conservation measures – A design manual for Queensland.

Queensland Department of Natural Resources and Mines, and the draft Horticulture work completed by Bruce Carey.



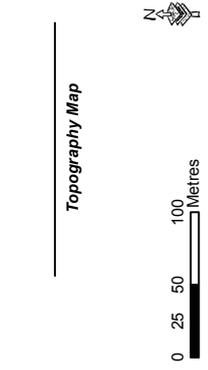
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Legend
 Boundaries
 Contours 10cm