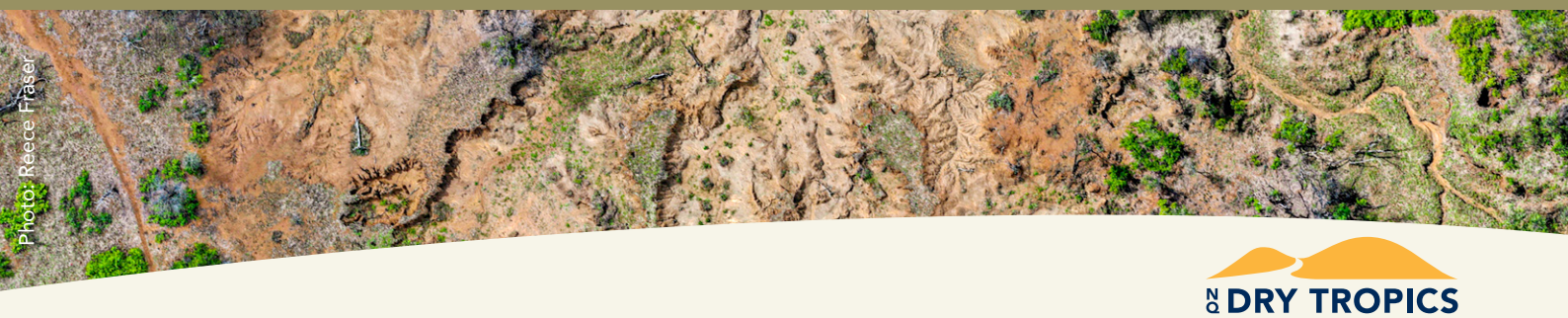

Protecting farm roads & reducing runoff

Whoa-boys are low profile, trafficable earth banks that intercept runoff flowing down roads and tracks, carrying it safely to a stable outlet, allowing natural flows to be maintained through the catchment. Whoa-boys should always be surveyed with a level.

Roads and tracks across a property are susceptible to erosion as they provide an easy path for water to follow. This concentrates the water instead of allowing it to spread and flow across the area. Once the runoff is concentrated, its velocity and the subsequent risk of damage increases. This makes incorporating prevention measures in the planning and construction of farm roads a vital part of any property plan.

Key Points for Design and Construction:

- Ensure you use a level to take readings and mark out all whoa-boys.
- Calculate spacing on the slope.
- Locate whoa-boys where there is a significant change in slope, rill or approach to the creek or drainage line.
- It is important to check the direction of overland flow adjacent to the road; to outlet on the bottom side.
- Choose a location with a stable outlet.
- Soil should be ripped to ensure it binds together with the soil below.
- Whoa-boys are started at the top of slope and spaced down from there.
- Whoa-boys should generally be constructed from the topside or high slope, however, if dispersive soils are present, whoa-boys should be constructed from the bottom side or import stable soil to reduce the risk of further exposing these subsoils.
- If you are working with dispersive soils, stockpile the topsoil and after construction, spread the topsoil or imported stable soil over the bank.
- Runoff from whoa-boys should flow into a grassed, flat-bottomed drain.
- Where possible, roads should be realigned to allow traffic to cross the whoa-boy at 90 degrees.

Image 1: Before and after whoa-boy construction.
Note erosion to the left of the track in the before photo.

For more information, contact
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Grade

In most cases whoa-boys should have reasonable resistance to erosion due to their short length.

- A fall of 10–25cm should be sufficient to ensure ponding doesn't occur on the track.
- If the channel is at risk of erosion then a grade of 0.2% (2 cm in 10 m) is recommended.

Height

- Constructed height of 45–60cm.
- Broad batters of 1:4 to 1:8.

Monitoring and Maintenance

- Regularly look for rills in existing tracks. It may be necessary to place whoa-boys at strategic locations.
- Monitor and check banks, outlets and tracks after rainfall events.
- Top up any weak or low spots as necessary.
- Clean silt out from outlets to ensure water can freely flow out.

For more information on whoa-boys, refer to Chapter 14 of the *Soil Conservation Guidelines for Queensland* and *Gully Erosion: Options for Prevention and Rehabilitation.*

Spacing

Table 1 provides general spacing for whoa-boys. The advantage of closely spaced whoa-boys is that each bank is dealing with a small catchment and in turn, a similarly small amount of runoff. This will increase the whoa-boys' longevity (reducing maintenance costs) and success (reducing erosion and improving the overall quality of waterways in the wider catchment).

Table 1: General recommended spacing for whoa-boys. (Source: Carey et al. 2015)

SLOPE (%)	SPACING (m)
1	100
2	60
3	50
4	45
5–6	40
7–8	35
9–11	30
12	25
13	23
14–20	20

Image 2: Runoff from roads and tracks can lead to extensive erosion.

Reference:
Carey BW, Stone B, Norman PL and Shilton P (2015). Chapter 14 Property infrastructure. In: *Soil Conservation Guidelines for Queensland.* Department of Science, Information Technology and Innovation, Brisbane.

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