

COFFS HARBOUR CITY COUNCIL



**DEVELOPMENT SPECIFICATION
DESIGN**

0281 Bushfire Perimeter tracks

Version 1 01 January 2009

0281 PERIMETER TRACKS FOR BUSHFIRE PROTECTION

1 SCOPE AND GENERAL

1.1 SCOPE

The work to be constructed under this worksection consists of perimeter tracks for fire protection. These tracks shall be constructed in accordance with the requirements as prescribed in the Soil Conservation Service Publication, Guidelines for the Planning, Construction and Maintenance of Tracks.

This worksection states the requirements for constructing and maintaining tracks to minimise soil erosion.

1.2 OBJECTIVE

The aim of this Specification is to prescribe requirements in order that bushfire protection provided by perimeter tracks is effective and is undertaken in a manner to minimise disturbance of the natural surroundings and the need for future maintenance.

1.3 QUALITY

Requirements for quality control and testing, including maximum lot sizes and minimum test frequencies, are given in 0161 *Quality (Construction)*.

1.4 REFERENCED DOCUMENTS

The following documents referred to in this worksection shall be deemed as the latest edition of the Australian Standards, including amendments and supplements.

Worksection

0161 *Quality (Construction)*

0250 *Open space – Landscaping*

1351 *Stormwater drainage (Construction)*

1352 *Pipe drainage*

1353 *Precast box culverts*

1354 *Drainage structures*

Other publications

NSW State Legislation

Soil Conservation Act, 1938

NSW Government Department Publication

Department of Land (formerly Conservation and Land Management)—Soil Conservation Service

Natural resources – NSW

Guidelines for the Planning, Construction and Maintenance of Tracks

1.5 DEFINITIONS

For the purposes of this worksection the following definitions apply:

- Batter: The face of an embankment or cutting, produced as a result of earthmoving operations involving cutting and filling.
- Cross bank: A hump of earth constructed across a track so that runoff is effectively diverted from it. Cross banks are designed to handle larger flows than cross drains.
- Cross drains: Drains of various forms that baulk the flow of water down a track and divert it across the track's surface. The capacity of the drain is defined by its cross-section. Cross drains are designed to handle smaller flows than cross banks but larger flows than can be controlled by crossfall drainage.

- Crossfall drainage: Drainage which occurs when the surface of a track has sufficient cross slope to cause water to flow across and off the surface, rather than along it. Where the water flows into the hillside, it is termed 'infall'. Where flow is away from the hillside, it is termed 'outfall'.
- Culvert: A pipe or similar structure used to direct water under the track.

1.6 CONNECTION TO EXISTING TRACKS

Perimeter tracks with the subdivision shall be connected by suitable intersections with existing access tracks.

1.7 REDUCING EROSION AND MAINTENANCE

The track surface shall be constructed with outfall drainage and trafficable cross banks, so as to reduce erosion damage and maintenance needs.

Establishing and maintaining vegetation on the tracks can further reduce erosion and may be deemed necessary in some areas.

2 CONSTRUCTION

2.1 CROSS BANKS

Cross bank outlet points

Outlet points for cross banks shall not be blocked by a stump or rock. Outlets shall be sited so that runoff will spill into undisturbed vegetation and cannot flow back onto the track.

Construction

The roadline shall be ripped to a depth of 200 to 300 mm for a distance of one or two tractor lengths back from the chosen outlet point.

The loose earth shall be pushed down the roadline into a bank, commencing at the uphill side of the road and working across the outlet side.

A long, shallow excavation for the cross bank shall be provided (typically 6 metres).

Shaping and compaction

Sufficient loose earth shall be used to give the required dimensions after shaping and compaction. Depending on the size of the machine being used, up to eight bladefulls of earth may be required.

The crest width dimensions shall be long enough to ensure comfortable vehicle access over the cross bank. The channel depth dimensions shall prevent runoff from overtopping the bank.

The entire length of the bank shall be track or wheel rolled to obtain maximum compaction and a smooth, even bank with batters no steeper in relation to the track surface than 1:5.

2.2 EARTHWORKS

Minimum disturbance

When constructing tracks, the soil and vegetation shall be disturbed as little as possible both on and adjacent to the track.

The track shall be constructed to follow the contour of the land as much as possible to reduce the amount of cut and fill.

For safety reasons, the maximum crossfall used shall generally not exceed 1:10.

Cut batters

To minimise the area of disturbed soil exposed, batters to 1.5 m shall be cut vertically.

Vertically cut batters may suffer from initial slumping but will generally stabilise with follow-up maintenance.

Cut batters higher than 1.5 m may require special stabilisation measures including laying back, revegetation and drainage.

Fill batters

Fill batters on all soil classes shall be no steeper than 2:1 and flatter where possible to encourage natural revegetation and to effectively accept seed and fertiliser.

Batters higher than 1.5 m on Class B, C and D soils may require special stabilisation works such as drop down drains, hay mulching, etc.

Debris

Vegetation debris shall not be incorporated in fill batters.

Borrow areas

'Borrow' areas shall not be located near drainage lines or streams because of the danger of sediment polluting the stream.

When necessary, 'borrow' areas shall be limited in size, worked in such a way to reduce the danger of sediment leaving the borrow pit and revegetated progressively as the pit is worked out.

Stockpile topsoil

Wherever practicable, topsoil and litter (free of timber debris) shall be stockpiled in a recoverable position for respreading over disturbed areas. This material contains valuable seed and nutrients which will greatly assist revegetation.

Timber clearing

Timber clearing shall be limited to 0.5 m on either side of the track. Where extra clearing widths may be needed such as to allow the sun in to keep the trail dry, clear by felling rather than dozing to limit the amount of soil disturbance.

2.3 DRAINAGE

Crossings

Drainage lines and streams shall be crossed with fords, culverts or bridges.

Log dam crossings shall not be used as they obstruct flood flows and can create turbulent flow and erosion.

Fords are preferable to culverts or bridges as they cost less and often can be built with little disturbance to the stream bed and banks.

Fords shall not be used where the stream has a deep cross-section requiring considerable excavation to provide approaches to the crossing.

Fords

Culverts shall not be used where debris blockages are likely.

Culverts

Where culverts and headwalls are used, they shall be constructed where shown on the Drawings or as directed by the Superintendent in accordance with 1351 *Stormwater drainage (Construction)*, 1352 *Pipe drainage*, 1353 *Precast box culverts* and 1354 *Drainage structures*.

Culverts shall be constructed as close as possible to the natural alignment of the drainage line to avoid diverting the flow into the stream banks or creating scour of the drainage line.

Disturbance

Soil and vegetation disturbance shall be kept to a minimum. Disturbed areas shall be seeded in accordance with 0250 *Open space - landscaping* to protect them from erosion.

No dumping

Timber, scrub, soil or debris shall not be dumped in drainage lines, but stacked well above flood levels.

Trees in prescribed streams

Where trees must be destroyed or injured in the bed or within 20 m of the banks, of prescribed streams as defined in the Soil Conservation Act, 1938, an authority from the Catchment Areas Protection Board is required.

2.4 REVEGETATION

Amount of revegetation

Revegetation shall be in accordance with requirements of 0250 *Open space - landscaping* indicated on the development/subdivision plan.

Immediate application

Where revegetation is required, it must be applied immediately following the disturbance while the soil is still loose, irrespective of the growing seasons.

A maintenance dressing of appropriate fertiliser and seed shall be applied.

3 MEASUREMENT AND PAYMENT

3.1 MEASUREMENT

Payment shall be made for the activities associated with completing the work detailed in this Specification in accordance with Pay Item C0401.1.

A lump sum for this item shall not be accepted.

If any item for which a quantity of work is listed in the Schedule of Rates has not been priced by the Contractor, it shall be understood that due allowance has been made in the prices of other items for the cost of the activity which has not been priced.

Culverts and headwalls are measured and paid in accordance with 1351 *Stormwater drainage (Construction)*, 1352 *Pipe drainage*, 1353 *Precast box culverts* and 1354 *Drainage structures*, as appropriate.

Seeding and revegetation is measured and paid in accordance with 0250 *Open space – landscaping*.

3.2 PAY ITEMS

C0401.1 Perimeter tracks

The unit of measurement shall be the linear metre measured along the centreline of track as shown on the Drawings.

The Schedule rate shall comprise all activities required to construct the tracks including clearing, earthworks, batters, cross drains and banks.