

CAPRICORN MUNICIPAL DEVELOPMENT GUIDELINES

BUSHFIRE PROTECTION (PERIMETER TRACKS)

C501

CONSTRUCTION SPECIFICATION

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Keeping the Capricorn Municipal Development Guidelines up-to-date

The Capricorn Municipal Development Guidelines are living documents which reflect progress of municipal works in the Capricorn Region. To maintain a high level of currency that reflects the current municipal environment, all guidelines are periodically reviewed with new editions published and the possibility of some editions to be removed. Between the publishing of these editions, amendments may be issued. It is important that readers assure themselves they are using current guideline, which should include any amendments which may have been published since the guideline was printed. A guideline will be deemed current at the date of development approval for construction works.

GENERAL

C501.01 SCOPE

1. The work to be constructed under this Specification consists of perimeter tracks for fire protection. These tracks shall be constructed in accordance with the guidelines contained in the IEAQ's publication "Soil Erosion and Sediment Control - Engineering Guidelines for Queensland Construction Sites".

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

Access Tracks

3. 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.

Construction

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

Principles

C501.02 OBJECTIVE

1. 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.

C501.03 REFERENCE DOCUMENTS

1. Documents referenced in this Specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

***Documents
Standards
Test Methods***

(a) Council Specifications

- C220 - Stormwater Drainage - General
- C221 - Pipe Drainage
- C223 - Drainage Structures
- C273 - Landscaping

(b) QLD State Legislation

- Water Resources Act, 1989.
- Riverine Environment Protection Regulations, 1993.

(c) Other

- Institution of Engineers Australia, Queensland Division (IEAQ)
- Soil Erosion and Sediment Control - Engineering Guidelines for Queensland Construction Sites, 1996.

C501.04 DEFINITIONS

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.
Turnaround Point	A designated area which has been cleared of vegetation and obstructions, to provide vehicles sufficient space to manoeuvre and turn vehicle around to travel in opposite direction.

CONSTRUCTION

C501.05 CROSS BANKS

1. 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. **Cross Bank Outer Point**
2. The roadline shall be ripped to a depth of 20 to 30 cm 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). **Construction**
3. 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. **Shaping and Compaction**
4. 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.

C501.06 EARTHWORKS

1. 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. **Minimum Disturbance**

2. To minimise the area of disturbed soil exposed, batters to 1.5 m shall be cut, 2 vertically to 1 horizontally. Cut batters higher than 1.5 m may require special stabilisation measures including laying back, revegetation and drainage.

Cut Batters

3. 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.

Fill Batters

4. Vegetation debris shall not be incorporated in fill batters.

Debris

5. "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.

Borrow Areas

6. 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.

**Stockpile
Topsoil**

7. Timber clearing shall be limited to 0.5m 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.

**Timber
Clearing**

C501.07 TURNAROUND POINTS

1. If required by Table C501.07.01 turnaround points shall be provided within fire-break 18m x 18m every 150m where practical. Absolute maximum length between turnaround points 200m.

**Turnaround
Points**

Table C501.07.01 - Applicability

Local Government	Required
Banana Shire Council	Yes
Central Highlands Regional Council	Yes
Gladstone Regional Council	Yes
Isaac Regional Council	Yes
Livingstone Shire Council	No
Maranoa Regional Council	Yes
Rockhampton Regional Council	Yes

C501.08 DRAINAGE

1. 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.

Crossings

2. 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

3. Culverts shall not be used where debris blockages are likely.

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| <p>4. Where culverts and headwalls are used, they shall be constructed where shown on the Drawings in accordance with the Specifications for STORMWATER DRAINAGE – GENERAL C220, PIPE DRAINAGE C221 and DRAINAGE STRUCTURES C223. 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 of creating scour of the drainage line.</p> | <p><i>Culverts</i></p> |
| <p>5. Soil and vegetation disturbance shall be kept to a minimum. Disturbed areas shall be seeded in accordance with the Specification for LANDSCAPING C273 to protect them from erosion.</p> | <p><i>Disturbance</i></p> |
| <p>6. Timber, scrub, soil or debris shall not be dumped in drainage lines, but stacked well above flood levels.</p> | <p><i>No Dumping</i></p> |
| <p>7. Where trees must be destroyed or injured in the bed or within 20m of the banks, of prescribed streams the requirements of the Water Resources Act - Riverine Environment Protection Regulations must be observed.</p> | <p><i>Trees in Prescribed Streams</i></p> |

C501.09 REVEGETATION

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| <p>1. Revegetation shall be in accordance with requirements of the Specification for LANDSCAPING C273 indicated on the development/subdivision plan.</p> | <p><i>Amount of Revegetation</i></p> |
| <p>2. Where revegetation is required, it must be applied immediately following the disturbance while the soil is still loose, irrespective of the growing seasons.</p> | <p><i>Immediate Application</i></p> |
| <p>3. A maintenance dressing of appropriate fertiliser and seed shall be applied.</p> | |