

**NEW SOUTH WALES**

**DEVELOPMENT  
CONSTRUCTION  
SPECIFICATION**

**C501**

**BUSHFIRE PROTECTION  
(Perimeter Tracks)**



**Amendment Record for this Specification Part**

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

<b>Amendment Sequence No.</b>	<b>Key Topic addressed in amendment</b>	<b>Clause No.</b>	<b>Amendment Code</b>	<b>Author Initials</b>	<b>Amendment Date</b>
<i>EXAMPLE 1</i>	<i>Provision for acceptance of nonconformance with deduction in Payment</i>	<i>XYZ.00</i>	<i>AP</i>	<i>KP</i>	<i>2/6/97</i>



## SPECIFICATION C501 BUSHFIRE PROTECTION (Perimeter Tracks)

### 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 requirements as prescribed in the Soil Conservation Service Publication, Guidelines for the Planning, Construction and Maintenance of Tracks.

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) NSW State Legislation

- Soil Conservation Act, 1938.

##### (c) NSW Government Department Publications.

- Department of Land and Water Conservation (formerly Conservation and Land Management) - Soil Conservation Service 1983.  
Guidelines for the Planning, Construction and Maintenance of Tracks.

**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.

**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 200 to 300mm 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. | <b>Minimum Disturbance</b> |
| 2. To minimise the area of disturbed soil exposed, batters to 1.5m shall be cut vertically. Vertically cut batters may suffer from initial slumping but will generally stabilise with follow-up maintenance. Cut batters higher than 1.5m may require special stabilisation measures including laying back, revegetation and drainage.      | <b>Cut Batters</b>         |
| 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 1.5m on Class B, C and D soils may require special stabilisation works such as drop down drains, hay mulching, etc.                        | <b>Fill Batters</b>        |
| 4. Vegetation debris shall not be incorporated in fill batters.   | <b>Debris</b>              |
| 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.                 | <b>Borrow Areas</b>        |
| 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.  | <b>Stockpile Topsoil</b>   |
| 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.  | <b>Timber Clearing</b>     |

**C501.07 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.   | <b>Crossings</b>   |
| 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.   | <b>Fords</b>       |
| 3. Culverts shall not be used where debris blockages are likely.  |                    |
| 4. Where culverts and headwalls are used, they shall be constructed where shown on the Drawings or as directed by the Superintendent in accordance with the Specifications for STORMWATER DRAINAGE - GENERAL, PIPE DRAINAGE and 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 of creating scour of the drainage line. | <b>Culverts</b>    |
| 5. Soil and vegetation disturbance shall be kept to a minimum. Disturbed areas shall be seeded in accordance with the Specification for LANDSCAPING to protect them from erosion.   | <b>Disturbance</b> |
| 6. Timber, scrub, soil or debris shall not be dumped in drainage lines, but stacked well above flood levels.  | <b>No Dumping</b>  |

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

***Trees in  
Prescribed  
Streams***

#### **C501.08 REVEGETATION**

1. Revegetation shall be in accordance with requirements of the Specification for LANDSCAPING indicated on the development/subdivision plan.

***Amount of  
Revegetation***

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

***Immediate  
Application***

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

### **SPECIAL REQUIREMENTS**

**C501.09 RESERVED**

**C501.10 RESERVED**

### **MEASUREMENT AND PAYMENT**

#### **C501.11 PAY ITEMS**

1. Payment shall be made for the activities associated with completing the work detailed in this Specification in accordance with Pay Item C501(a).

2. A lump sum for this item shall not be accepted.

3. 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.

4. Culverts and headwalls are measured and paid in accordance with the Specifications for STORMWATER DRAINAGE - GENERAL, PIPE DRAINAGE and DRAINAGE STRUCTURES as appropriate.

5. Seeding and revegetation is measured and paid in accordance with the Specification for LANDSCAPING.

#### **Pay Item C501(a) PERIMETER TRACKS**

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

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

AUS-SPEC #1

**CONTENTS**

<b>CLAUSE</b>	<b>PAGE</b>
<b>GENERAL .....</b>	<b>1</b>
C501.01 SCOPE.....	1
C501.02 OBJECTIVE .....	1
C501.03 REFERENCE DOCUMENTS.....	1
C501.04 DEFINITIONS .....	2
<b>CONSTRUCTION.....</b>	<b>2</b>
C501.05 CROSS BANKS .....	2
C501.06 EARTHWORKS .....	3
C501.07 DRAINAGE.....	3
C501.08 REVEGETATION .....	4
<b>SPECIAL REQUIREMENTS .....</b>	<b>4</b>
C501.09 RESERVED.....	4
C501.10 RESERVED.....	4
<b>MEASUREMENT AND PAYMENT.....</b>	<b>4</b>
C501.11 PAY ITEMS .....	4

AUS-SPEC #1