Land Management

PART B

COWRA COUNCIL
116 KENDAL STREET
COWRA NSW 2794

COWRA COUNCIL
DEVELOPMENT
Control Plan
2026

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Erosion + Sedimentation

PART B.1

This Part outlines Council's requirements for soil erosion and sediment control on construction sites in the Cowra Local Government Area.

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B.1.1. Introduction

Soil erosion on building and construction sites can be a major source of sediment pollution in our waterways.

Building and construction sites create minimal soil erosion problems in dry weather conditions. However, during heavy rainfall events tonnes of soil can be lost from building sites if adequate controls are not in place. This can have a number of undesirable impacts, including blocked stormwater pipes causing flooding, soil washing over roads and into adjoining properties, environmental degradation of creeks and reduced water quality.

The Cowra Shire lies within the Lachlan River Catchment which suffers from turbidity and salinity problems, algal blooms, carp and declining numbers of native fish. Government authorities have the power to take action against people who pollute natural waterways.

This policy provides guidelines to assist builders in adopting practical measures to control soil erosion on construction sites. Builders who follow this policy will be making a significant positive contribution to the environment and avoid possible action from the regulatory authorities that control pollution.

Section B.1 of this Part has been prepared in accordance with the 'Blue Book' (Managing Urban Stormwater Soils and Construction) – by Landcom, Fourth Edition (2004), as the primary reference document for soil erosion and sedimentation control on development sites.

B.1.2. Application of this Part

Section B.1 applies to all developments within the Cowra Local Government Area except where:

a. The development is exempt under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

b. The development involves construction works that will be undertaken inside existing buildings with no disturbance to the natural grounds surface.

c. The development only involves the erection of a first floor storey on top of any existing building.

d. The development is for the purpose of a Class 1 or 10 structure outside the urban area of Cowra on an allotment of land greater than 10 hectares which is not identified as environmentally sensitive, flood prone, within 100 metres of a watercourse, or having a slope steeper than 14°.

The development relates to a site that is already subject to an approved Erosion and Sediment Control Plan.

B.1.3. Objectives

The objectives for soil erosion and sedimentation control are:

a. To address State Legislation requirements described under the Protection of the Environment Operations Act 1997.

b. To ensure that the quality of runoff discharged from a development does not impact on the environment and receiving waters in terms of sedimentation, water pollution and other impacts.

c. Maximise the amount of vegetation retained on development sites and ensure its protection during construction and operation of the development.

d. Ensure that erosion and sediment controls are considered during the construction phase of developments through the preparation of Erosion and Sediment Control Plan.

B.1.4. Plan requirements

The minimum standard of erosion prevention and sediment control planning required for a development is categorised by the total area of soil surface that will be disturbed. This includes areas of cut and fill, vegetation removal, driveways and access ways.

The following table provides guidance to developers on the type of plan required to be submitted to Council depending on the nature of the development.

The use of qualified engineers and environmental professionals to prepare the ESCP is recommended by Council for large projects and difficult sites. This can assist to reduce the time necessary to assess applications.

Disturbed area (m2)	Minimum requirements	Details
0 - 250m2	No Plan required	N/A
250 – 2,500m2	Erosion and Sediment Control Plan (ESCP)	Graphic plan to scale of at least 1:200 that identifies erosion prevention and sediment control measures required for the site.
> 2,500m2	Soil and Water Management Plan (SWMP)	Prepared in accordance with the publication, The 'Blue Book' (Managing Urban Stormwater Soils and Construction) – by Landcom, Fourth Edition (2004).

Detailed diagrams and construction notes for preparing an ESCP are also included the guideline document prepared by NSW Government 'Managing Urban Stormwater: Soils and Construction -Volume 1 Fourth Edition.

B.1.5. Erosion and Sediment Control Plan (ESCP)

All ESCPs should contain, as a minimum, the following information:

a. Locality details;

b. North point (magnetic and true) and scale;

c. Property boundaries and adjoining roads;

d. Existing land contours;

e. Location of vegetation to be removed / retained.

f. Existing watercourses and drains

g. Proposed building/structures and disturbed areas;

h. Proposed vehicular access;

i. Extent of earthworks and limits of cut and fill;

j. Location of proposed stockpiles;

k. Location of temporary and permanent site drainage, erosion and sediment control measures.

l. Location of temporary and permanent re-vegetation areas;

m. An explanation of any changes to the erosion prevention and sediment controls as the works proceed; and

n. Supplementary notes covering inspection and maintenance requirements.

Detailed guidance from preparing an ESCP is also included the guideline document prepared by NSW Government 'Managing Urban Stormwater:Soils and Construction -Volume 1 Fourth Edition.

B.1.6. Soil and Water Management Plan (SWMP)

When disturbance exceeds 2,500m2, ESCP measures are incorporated as a component of a Soil and Water Management Plan. Soil and Water Management Plans as a minimum should contain:

a. Detailed calculations to determine the soil loss and the size of any sediment basins that may be required on the site;

b. Information required for an ESCP;

c. Location and diagrams of all erosion and sediment site controls used,

d. Locations, calculations and engineering details of any sediment basins,

e. Location and details of other stormwater management structures such as; constructed wetlands, gross pollutant traps, trash racks or separators.

f. Procedures for the operation and maintenance of pollution control equipment/works must also be noted including:

   i. Quality and characteristic of any wastes before treatment;

   ii. Estimate quality of wastes after treatment;

   iii. Details of permitted maximum pollution levels specified by Council or the EPA;

   iv. Estimate of the average volumes of waste from the site;

   v. Details of the treatment methods e.g. flocculation agents;

   vi. Methods of disposal of the wastes, including discharge points and/or disposal areas;

   vii. Details of major items of equipment used e.g. pumps, sprays etc;

   viii. Identify any special requirements or site conditions that exist (and may require specialist services/ advice);

   ix. Identify inspection procedures and inspectors; and any other relevant matters.

Detailed diagrams and construction notes for these design guidelines are included the guideline document prepared by NSW Government 'Managing Urban Stormwater:Soils and Construction -Volume 1 Fourth Edition'.

B.1.7. Design Guidelines

The following principles provide guidance on what issues need to be considered when preparing any one of the following plans:

a. Erosion & Sediment Control Plan

b. Soil and Water Management Plan

B.1.7.1. Retain Vegetation

a. Keep disturbance to a minimum. Vegetation should not be removed from the site until the start of construction is imminent and then only for the area approved by council for the location of the building.

b. Fence or tape off those areas to remain undisturbed.

c. Existing vegetation on the footpath areas should be retained as this provides an effective sediment filter.

B.1.7.2. Stockpile Topsoil

a. Retain stripped topsoil for reuse on-site during landscaping and site rehabilitation.

b. Protect stockpiles by erecting sediment fencing on the down slope side.

B.1.7.3. Control Site Access

a. Only one entry/exit should be provided for each building site with the recommended maximum width for:

   i. residential allotments – four (4) metres

   ii. commercial/industrial – six (6) metres

b. Stabilise the access point by using gravel or crushed concrete with a minimum aggregate size of 50mm applied to a minimum depth of 100mm. Forward planning may enable this initial stabilisation to be incorporated into construction for the permanent access point.

c. Vehicles should park on the stabilised access point or on the roadway. Under no circumstances are vehicles permitted to park on the footpath area.

B.1.7.4. Reduce Erosive Power of Flows

a. Reduce the slope length through the use of graded banks, cross banks and drains.

b. Keep batters as flat as possible. On larger developments batters should not exceed 3:1.

c. Revegetate disturbed sites as soon as possible.

B.1.7.5. Sediment Control

a. Where possible, build a diversion bank around the topside of the excavation line to divert clean runoff from above the site away from the building site and other disturbed areas.

b. Provide sediment fencing/hay bales below all construction sites to slow and filter sediment laden runoff.

c. A filter roll or other inlet filters may be required to be placed in front of or over any stormwater inlet pit located on the adjacent road.

d. Strips of turf laid adjacent to the footpath may act as effective sediment filters.

e. Sediment retention basins should be installed on large sites particularly if the soils are dispersive.

B.1.7.6. Washout Areas

a. Do not wash-out barrows, paintbrushes, brick cutters and other tools in the street gutter.

b. Provide a designated wash-out area which will detain and filter polluted water.

B.1.7.7. Control Stormwater

a. Where possible, use grassed or natural drainage channels to carry and filter runoff.

b. Connect downpipes to the stormwater system before placing roof materials.

B.1.7.8. Site Rehabilitation

a. Stabilise disturbed areas by turfing, mulching, seeding, paving or similar.

b. Rehabilitate all excavated and filled areas.

B.1.7.9. Maintain the Job site

a. Erosion and sediment controls must be maintained throughout the course of construction and until the building site has been rehabilitated and stabilised.

b. Stabilised access points are to be replenished as necessary to maintain their effectiveness.

c. All control measures are to be inspected after each rainfall event and cleaned or repaired if required.

d. Accidental spills of soil or other materials onto the roadway or gutter must be removed prior to completion of the day's work. Spills are to be removed by sweeping, shovelling or a means other than washing.

Detailed diagrams and construction notes for these devices are included the guideline document prepared by NSW Government 'Managing Urban Stormwater:Soils and Construction -Volume 1 Fourth Edition'.

B.1.8. Erosion prevention and sediment control techniques

This section outlines the various erosion and sediment controls that can be incorporated on a site, depending on the nature and scale of the development.

B.1.8.1. All Sites

The following erosion and sediment control devices are generally applicable to most building sites:

a. Site Access

b. Stock Piles

c. Sediment Traps and Filters

d. Inlet Filters

e. Site Fences

f. Hay Bale Fences

g. Diversion Banks and Catch Drains

h. Turfing

i. Trenching

B.1.8.2. Large Development Sites

The following erosion and sediment control devices are appropriate for large developments sites greater than 2000m2. These control devices may also be appropriate for sites requiring more stringent controls such as those containing or adjacent to significant natural areas.

a. Check Dams

b. Temporary Waterway Crossings

c. Sediment Retention Basins

Detailed diagrams and construction notes for these devices are included the guideline document prepared by NSW Government 'Managing Urban Stormwater:Soils and Construction -Volume 1 Fourth Edition.

B.1.8.3. Revegetation

Revegetation is an essential part of site rehabilitation. Vegetation protects soil from erosion by physically binding soil particles, reducing the velocity and erosive power of water and intercepting rain and improving soil permeability. Revegetation is usually inexpensive and may be temporary or permanent.

The following controls and treatments will facilitate the revegetation process.

a. Topsoil Treatment

b. Erosion Control Blankets

Detailed diagrams and construction notes for these devices are included in Appendix C to this Part.

All disturbed areas designated for revegetation should be sown down within 14 days of completion of construction works using turf or a suitable seed and fertiliser mixture.

On larger developments:

a. Better results will be achieved if sowing down is programmed to occur in autumn/winter.

b. Surfaces that are clayey and with little top soil coverage will limit germination and thus success of a seed and fertiliser mixture. These surfaces, after sowing should be hay mulched. This can be done manually. One straw bale can be spread to cover 10-12m2.

c. Alternatively, hydro mulching and spray seed contractors can be utilised to revegetate extensive surface areas.

d. Drainage lines or channels carry concentrated flows and will require specialised revegetation techniques such as using erosion control blankets. E.g.; jute mesh and bitumen. The erosion control blanket carries the flow until the seed germinates and the vegetation gradually establishes and stabilises the channel.

e. Erosion control blankets may also provide additional protection during drought or other slow growth periods.

B.1.9. Additional matters for consideration

Excavation

In the event that a footpath or other public land is to be excavated, the written approval of the Cowra Shire Council is required and a Section 138 Permit under the Roads Act may be required. The applicant will be responsible for complying with all requirements and conditions imposed by the Council in this regard.

Drainage

In complying with this Policy it is important that stormwater not be diverted onto neighbouring properties. All stormwater must be treated on site before it is allowed to flow into the approved stormwater system.

Maintenance

Once approval has been granted for construction to take place, regular maintenance of the sediment control devices is required for them to work correctly. In the event of a sediment control device becoming damaged in anyway, the applicant, at his or her own expense must fix it immediately. The owner/occupier of the site is to ensure that erosion control measures installed by builders are maintained until the site has been revegetated.

Cleaning of sediment control devices also needs regular monitoring with particular attention being paid to these devices after a storm event. Once a sediment trap or diversion bank reaches half its capacity, it must be cleaned out to its original state with any sediment being used on the site again or transported away for correct disposal.

Environmental Controls

The Protection of the Environment Operations Act 1997 gives local government councils and the NSW Department of Environment and Conservation wide ranging powers to control water pollution, including the power to issue clean up notices and fine a person who is found to have committed an offence against the Act.

The Environmental Planning and Assessment Act 1979 also gives local government councils the power to enforce conditions of development consent, including conditions requiring soil erosion and sediment controls to be put in place to safeguard the environment. Council can serve an order on a person to comply with conditions of consent and can instigate penalty action against a person that is found to be in breach of the Act.

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Appendix A

Sediment Control - All Sites

This Part provides guidance on sediment control techniques that are suitable to be used on all construction sites.

Stabilised Site Access

Construction Notes:

~ Strip topsoil and level site.

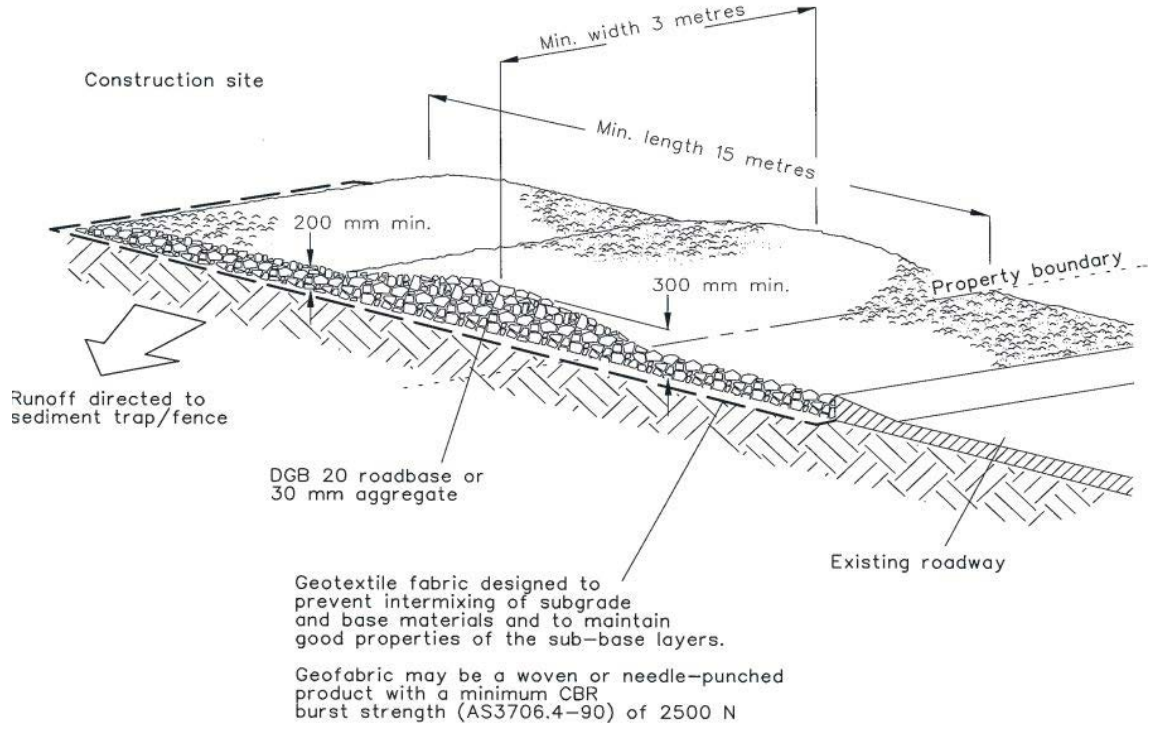
~ Compact sub-grade.

~ Cover area with needle-punched geotextile.

~ Construct 200mm thick pad over geotextile using road base or 30mm aggregate. Minimum length 15 metres or to building alignment. Minimum width 3 metres.

~ Construct hump immediately within boundary to divert water to a sediment fence or other sediment trap.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction



Stock Piles

Construction Notes:

~ Locate stockpile at least 5 metres from existing vegetation, concentrated water flows, roads and hazard areas.

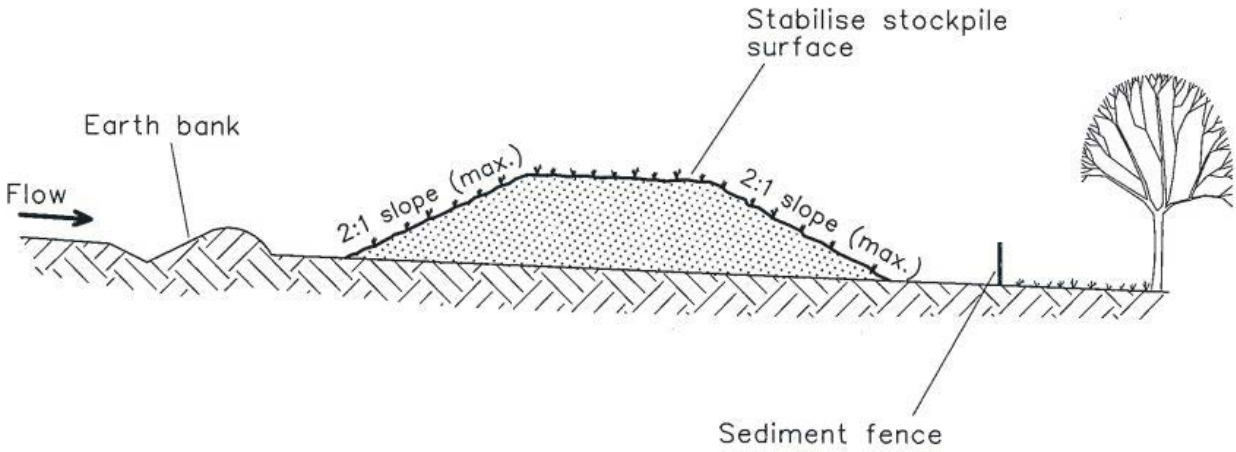
~ Construct on the contour as a low, flat, elongated mound.

~ Where there is sufficient area topsoil stockpiles shall be less than 2 metres in height.

~ Rehabilitate in accordance with the ESCP.

~ Construct earth bank on the upslope side to divert run off around the stockpile and a sediment fence 1 to 2 metres down slope of stockpile.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction

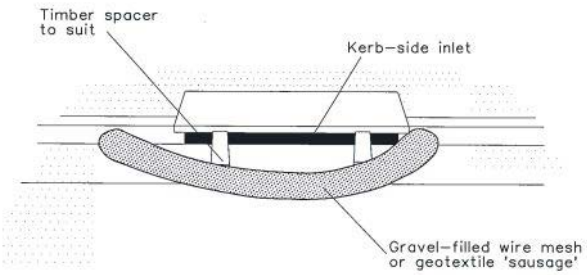


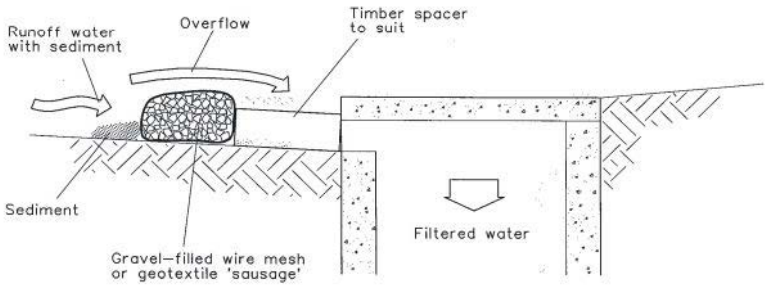
Inlet Filters

Construction Notes:

- Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit.
- Fill the sleeve with 25mm to 50mm gravel.
- Form an elliptical cross-section about 150mm high x 400mm wide.
- Place the filter at the opening of the kerb inlet leaving a 100mm gap at the top to act as an emergency spillway.
- Maintain the opening with spacer blocks.
- Form a seal with the kerbing and prevent sediment bypassing the filter.
- Fit to all kerb inlets at sag points.
- Fabricate a sediment barrier made from geotextile, straw bales, sand bags or wire mesh and gravel.
- Support geotextile with mesh tied to posts at 1 metre centres.
- Do not cover inlet with geotextile.
- Construction details are similar to those for sediment and hay bale fencing.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction





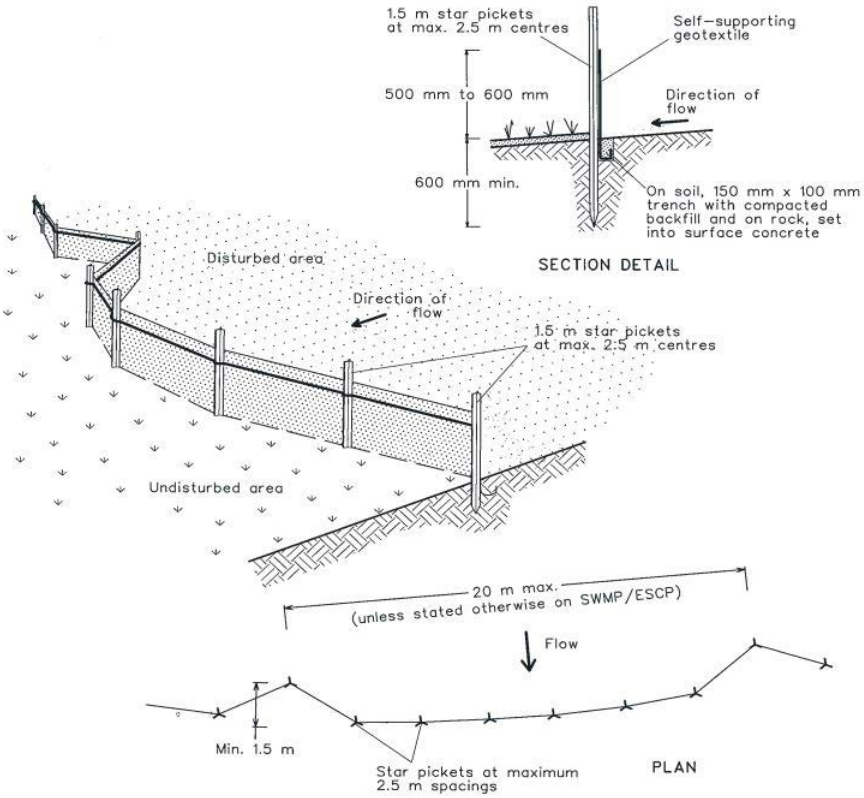
NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

Silt Fences

Construction Notes:

- Construct sediment fence as close as possible to parallel to the contours of the site.
- Drive 1.5 metre long star pickets into ground, 3 metres apart.
- Dig a 150mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
- Backfill trench over base of fabric.
- Fix self-supporting geotextile to upslope side of posts with wire ties or as recommended by geotextile manufacturer.
- Join sections of fabric at a support post with a 150mm overlap.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction

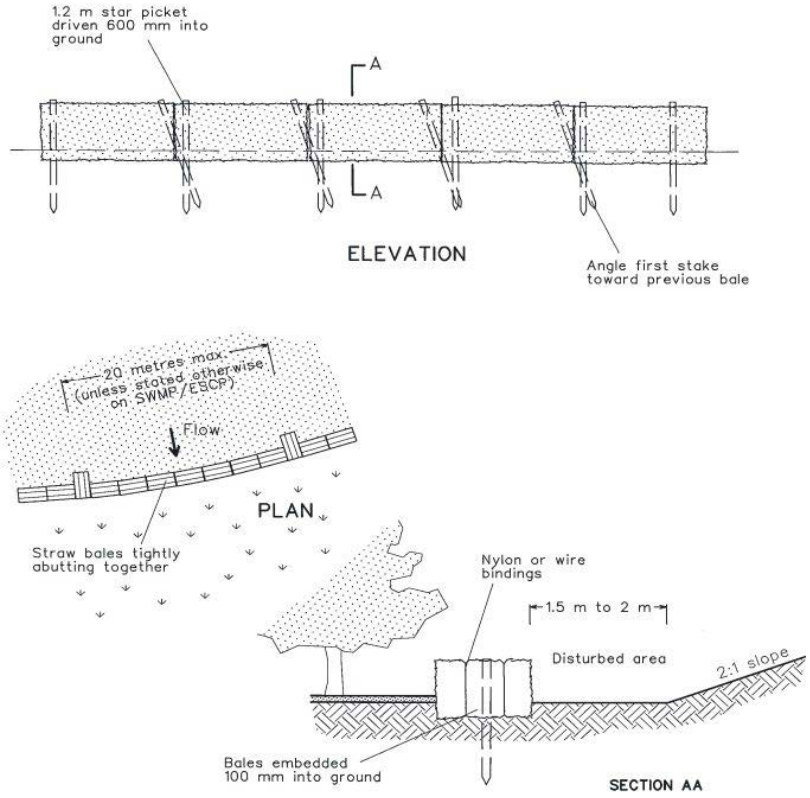


Hay Bale Fences

Construction Notes:

- ~ Construct straw bale filter as close as possible to parallel to the contours of the site or at the toe of a slope.
- ~ Place bales lengthwise in a row with ends tightly abutting.
- ~ Use straw to fill any gaps between bales. Straws to be placed parallel to ground.
- ~ Maximum height of filter is one bale.
- ~ On soft materials, embed each bale in the ground 75mm to 100 mm and anchor with two 1.2 metre star pickets.
- ~ Angle the first stake in each bale towards the previously laid bale. Drive stakes 600mm into the ground and flush with the top of the bales.
- ~ Where a straw bale filter is constructed down slope from a disturbed batter the bales should be located 1.5 to 2metres down slope from the toe of the batter.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction

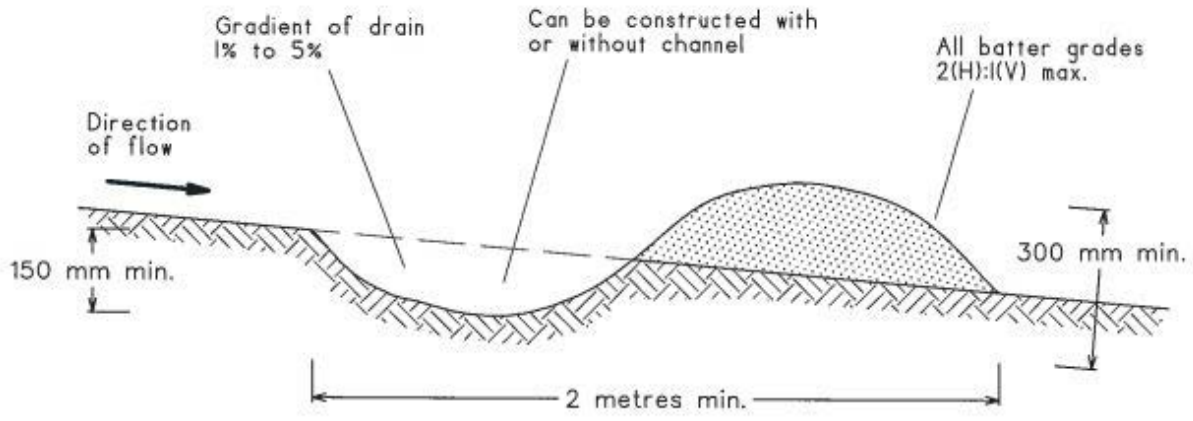


Earth Bank (Low Flow)

Construction Notes:

- Build with gradients between 1 percent and 5 percent.
- Avoid removing trees and shrubs if possible - work around them.
- Ensure the structures are free of projections or other irregularities that could impede water flow.
- Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
- Ensure the banks are properly compacted to prevent failure.
- Complete permanent or temporary stabilisation within 10 days of constructions.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction



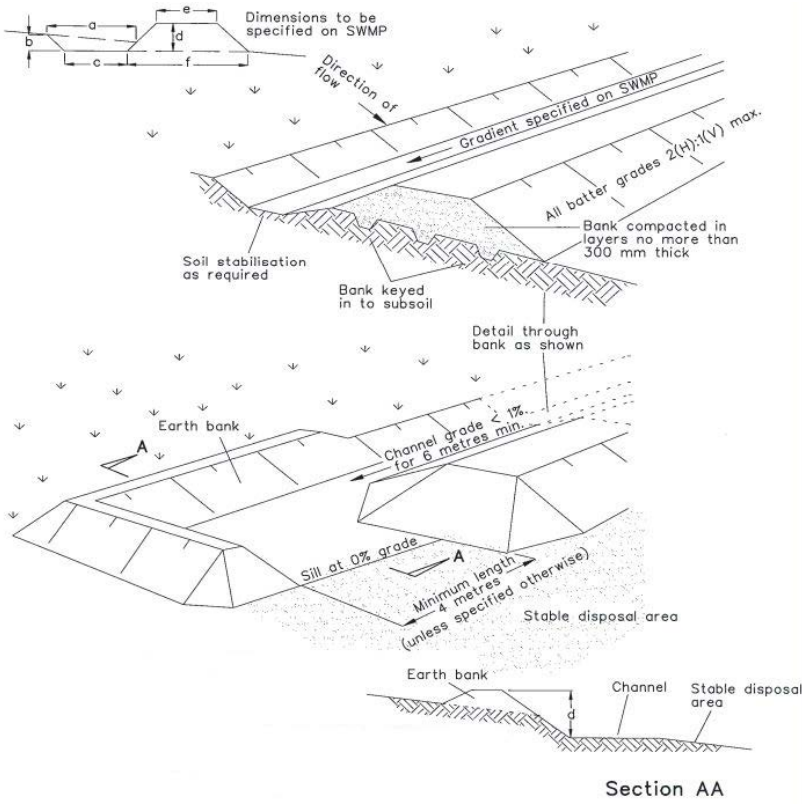
NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Earth Bank (High Flows)

Construction Notes:

- Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent.
- Avoid removing trees and shrubs if possible - work around them.
- Ensure the structures are free of projections or other irregularities that could impede water flow.
- Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
- Ensure the banks are properly compacted to prevent failure.
- Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
- Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
- Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
- Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction



Turfing

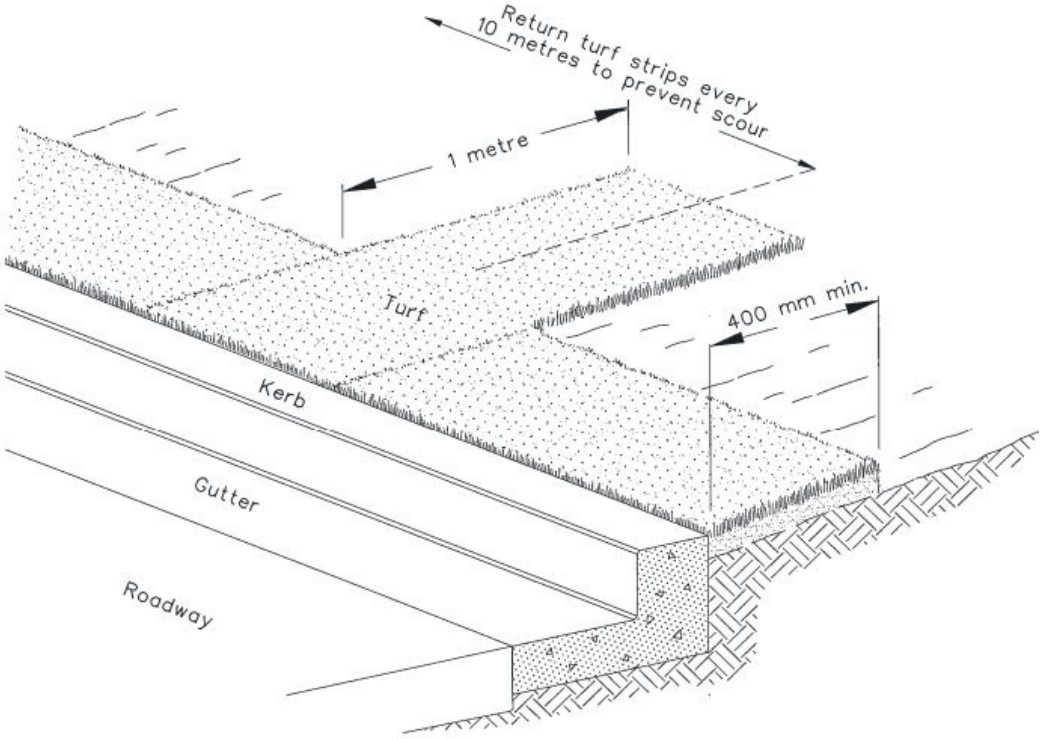
Construction Notes:

~ Install min. 400mm wide roll of turf on the footpath adjacent to the kerb and at the same level as the top of the kerb.

~ Lay 1.5 metre long turf strips normal to the kerb every 10 metres.

~ Rehabilitate disturbed soil behind the turf strip in accordance with the ESCP.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction



Trenching

Construction Notes:

~ Do not open any trench unless it is likely to be closed in three days.

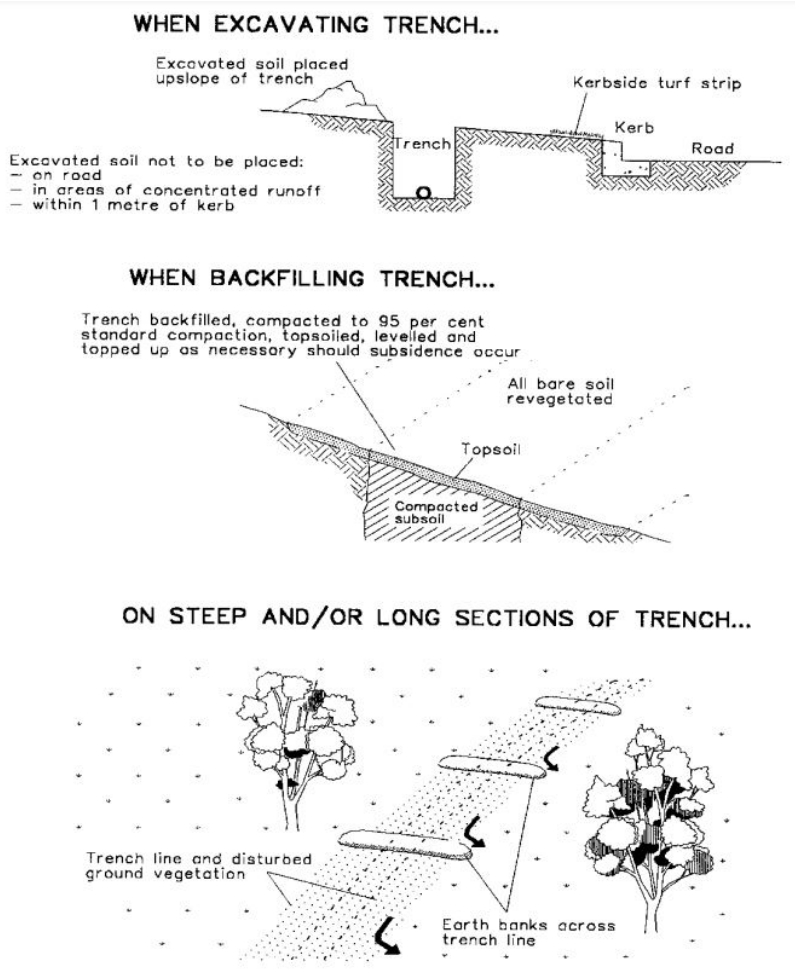
~ Place excavated material upslope of trench.

~ Stockpile topsoil separately from subsoil.

~ Divert runoff from the line of the cut with diversions.

~ Rehabilitate in accordance with specification.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction



Appendix B

Sediment control - larger sites

This Part provides guidance on sediment control techniques that are suitable to be used on all larger construction sites.

Check Dams

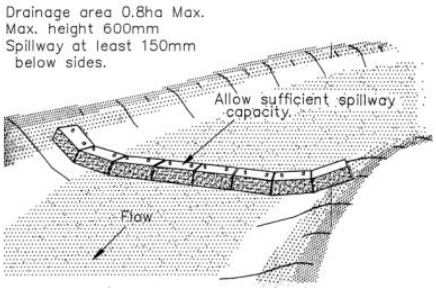
Construction Notes:

~ Trench structure 200mm into ground surface wherever the structure contacts the gully base. Fill trenches to 100mm above ground surface to reduce risk of undercutting.

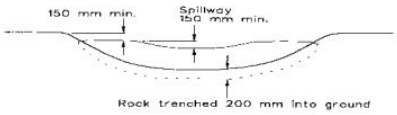
~ Ensure height of spillway is less than 1 metre above the gully floor.

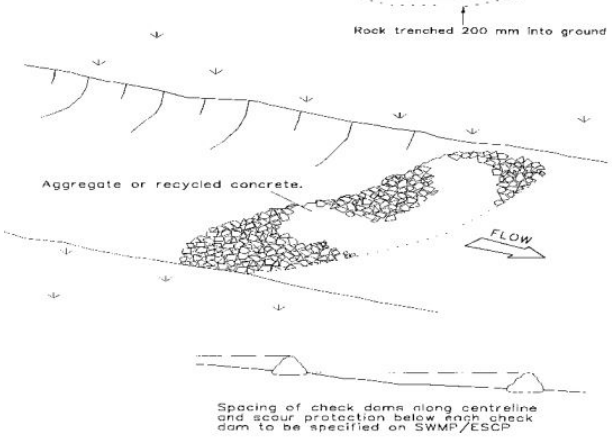
~ Space checks so the toe of the upstream dam is level with the spillway of the next downstream dam.

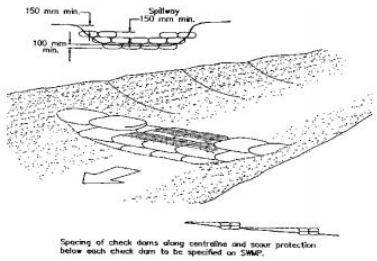
Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction

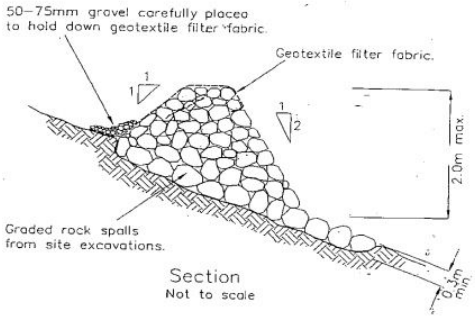


Straw Bale Check Dam









Section
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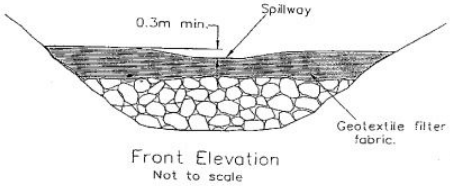


Front Elevation
Not to scale

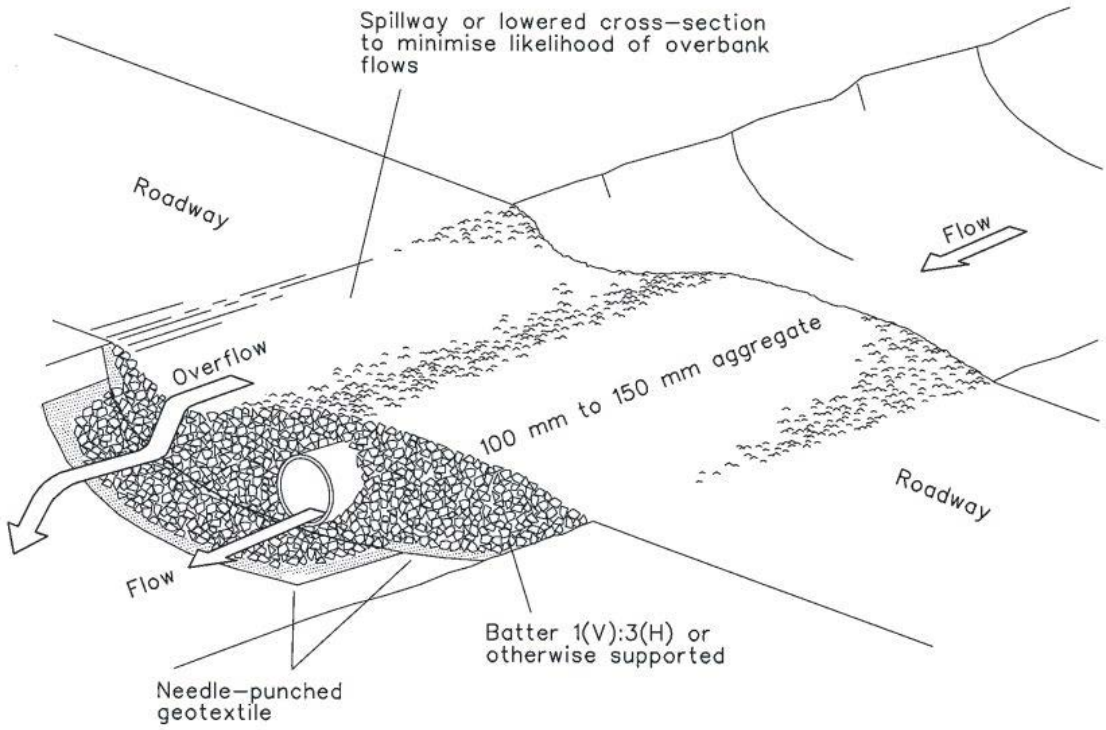
Stacked Rock Sediment Trap.

Temporary Waterway Crossings

Construction Notes:

- ~ All traffic prohibited until access way is constructed.
- ~ Strip topsoil and place a needle punched textile over the base of the crossing.
- ~ Place clean rigid non-polluting aggregate or gravel in 100mm to 150mm class over fabric to a minimum depth of 200mm.
- ~ Provide 3 metre wide carriage way along with sufficient length of culvert pipe to allow less than a 3 (H): 1(V) slope on side batters.
- ~ Ensure that culvert outlets extend beyond the toe of fill embankments.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction

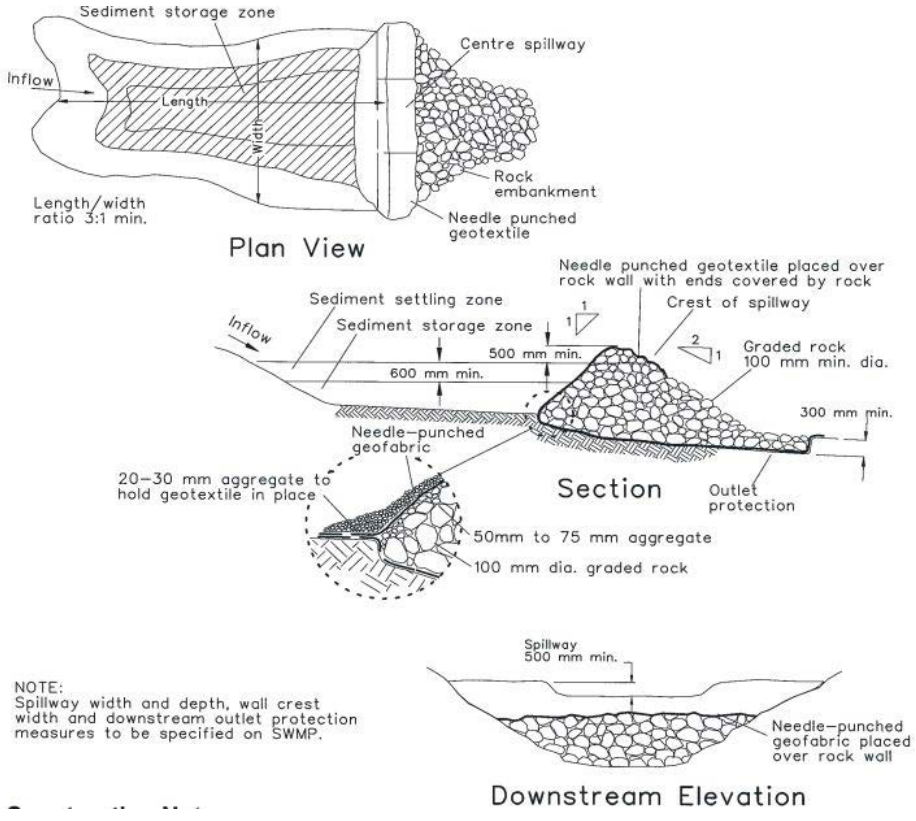


Sediment Retention Basin

Construction Notes:

- Basin design will depend upon the soil texture. The above diagram is suitable for soils with less than 33 per cent of material finer than 0.02mm.
- Remove all vegetation and topsoil from under the dam wall and from within the storage area.
- Excavate to 300mm depth for dam base and line with needle-punched geotextile. Allow enough to line from the toe of the dam, under the dam, over the upstream batter and spillway to 500mm below the spillway exit on the downstream face.
- Wall profile and outlet protection shall be made up of 100mm min. diameter graded rock. A layer of 50mm to 75mm diameter aggregate shall be spread over upstream batter for a more even surface, and 100mm to 150mm of 20mm to 30mm gravel shall be added over the 50mm to 75mm diameter aggregate.
- Lay geotextile over the upstream batter and through spillway, fixing in place with 100mm rock.
- Place a "Full of Sediment" marker to show when less than design capacity occurs and sediment removal is required.
- Replace upstream geotextile layer each time sediment is removed.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction



Appendix C

sediment control - revegetation

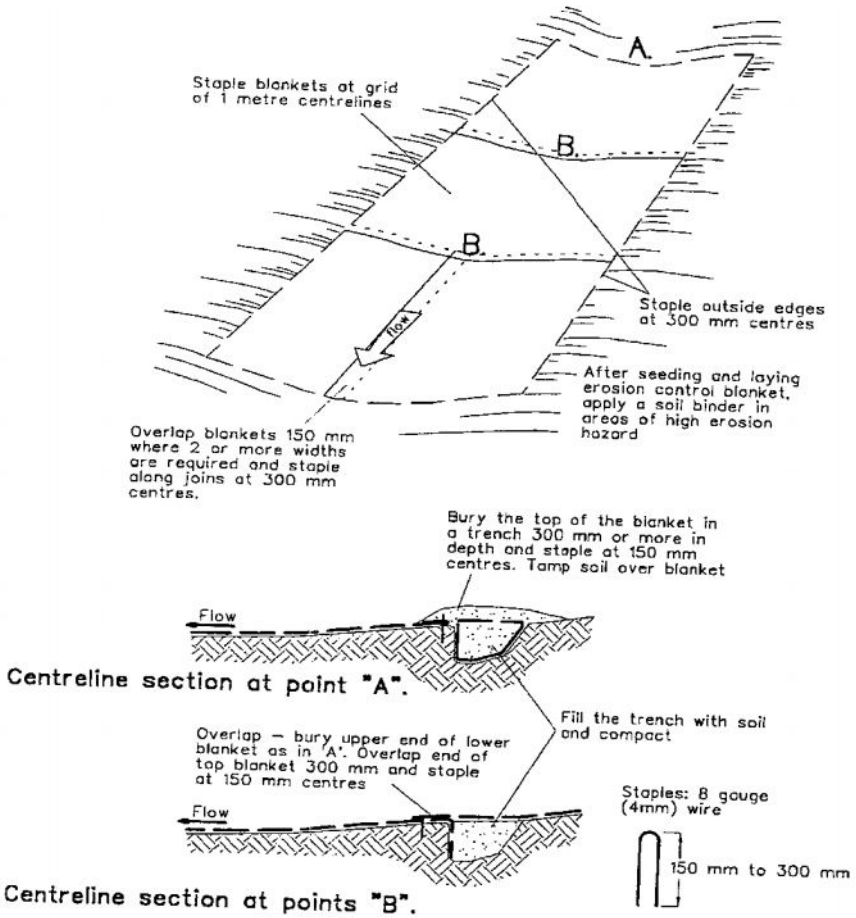
This Part provides guidance on sediment control techniques that are suitable to be used for revegetation areas that have been left exposed as part of construction processes.

Erosion Control Blanket

Construction Notes:

- Remove any rocks, clods, sticks or glass from surface before laying matting.
- Topsoil to be minimum 75mm deep.
- Fertilising and seeding to be completed before matting.
- Ensure fabric is continuously in contact with the soil by grading the surface carefully.
- Lay in "shingle-fashion" with the end of the upstream roll overlapping the next roll placed.
- Full width of flow in channel to be covered by matting.
- Water to be diverted away from treated slopes until vegetation is established unless channel is sprayed with a slow–setting anionic soil binder.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction

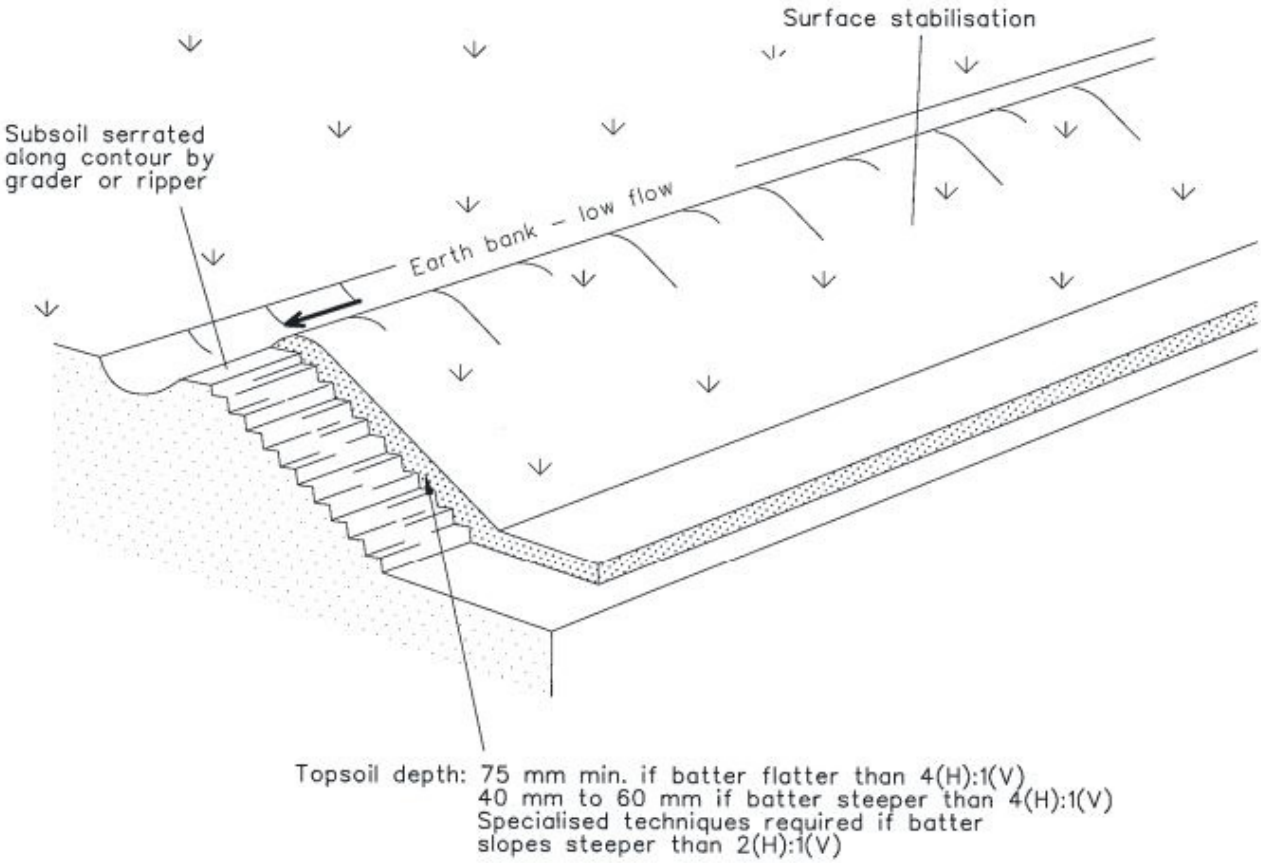


Topsoil Treatment

Construction Notes:

- Stockpiled top soil should be returned to disturbed areas to a depth of 100mm. However a minimal cover is better than no cover at all.
- Minimal working of the soil is required, as excessive washing of the soil will destroy its structure and friability.
- Avoid incorporation of subsoil material into the topsoil.
- When replacing topsoil scarify ground surface along the line of the contour to a depth of 50mm to 100mm to break up any hardsetting surfaces and provide a good bond between the topsoil and subsoil.
- Where possible, ensure any cultivation of the soil is parallel to the contour.

Source: NSW Department of Housing. 1998, Managing Urban Stormwater: Soils and Construction



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PREPARED BY
COWRA SHIRE COUNCIL
116 KENDAL STREET
COWRA NSW 2794

DEVELOPMENT Control Plan 2026