

POLICY NO

C5:2

POLICY TITLE EROSION AND SEDIMENT CONTROL

VERSION II: Adopted 19 August 2003

Last reviewed: 19 August 2003

OBJECTIVES

To provide guidelines and control on Erosion and Sediment Control in the Dungog Shire.

POLICY STATEMENT

The Erosion and Sediment Control policy is attached.

Date Policy Adopted	Minute No	Authority
17 July 2001	30690	Council resolution
19 August 2003	31593	Council resolution

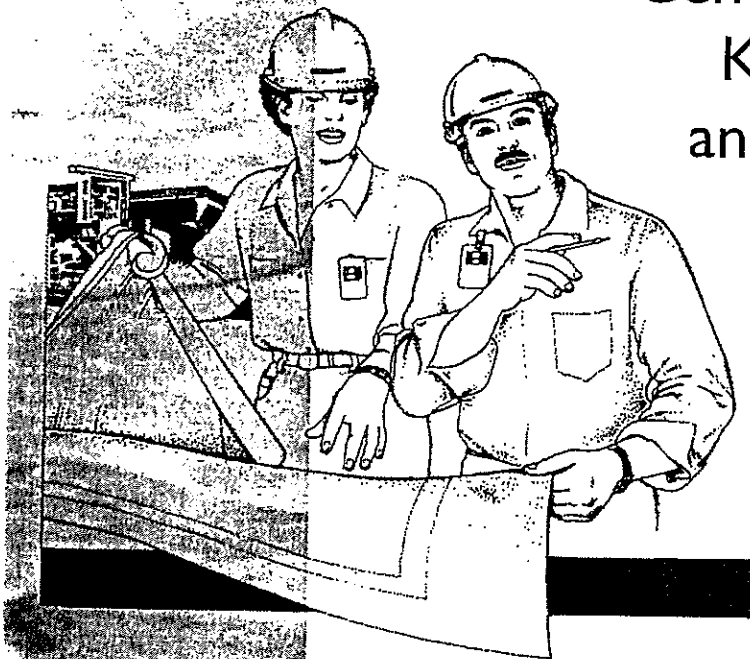
Erosion and Sediment Control

**Regional Policy and
Code of Practice**

~

Additional Clauses

Central Coast, Hunter,
Karuah Great Lakes
and Manning Regions
of NSW



Dungog Shire Council

Erosion and Sediment Control Regional Policy and Code of Practice

for Councils and Other Authorities

Document 1



**Central Coast, Hunter,
Karuah Great Lakes
and Manning Regions
of NSW**

Acknowledgments

Reference Documents

This Policy and Code of Practice draws on information contained in the following documents:

- (a) Department of Conservation and Land Management (1992), *Urban Erosion and Sediment Control (Revised Edition)*
- (b) Dwyer, P and Kidd, R. (1993) *Erosion and Sediment Control - Model Policy and Code of Practice: Department of Land and Water Conservation.*
- (c) Lake Macquarie Catchment Management Committee (1994), *Erosion and Sediment Control Policy, Code of Practice*
- (d) Hunter Catchment Management Trust (1995), *Erosion and Sediment Control Policy and Strategy.*
- (e) Gosford City Council (1996) *Policy and Code of Practice: Erosion and Sediment Control*

Copyright: 1998

- * Department of Land and Water Conservation
- * Lower Hunter and Central Coast Regional Environmental Management Strategy
- * Hunter Catchment Management Trust

Copying of this Code of Practice is permitted with acknowledgment.

The valuable contribution of the Department of Land and Water Conservation, Hunter Catchment Management Trust and the Lower Hunter & Central Coast Regional Environmental Management Strategy in financing and coordinating this regional initiative is acknowledged.

Organisations which were invited/participated in the development of this Regional Policy and Code of Practice are:-

- (a) Local Government:
 - Cessnock City Council
 - Dungog Shire Council
 - Gloucester Shire Council
 - Gosford City Council
 - Great Lakes Shire Council
 - Lake Macquarie City Council
 - Maitland City Council
 - Merriwa Shire Council
 - Murrurundi Shire Council
 - Muswellbrook Shire Council
 - Newcastle City Council
 - Port Stephens Council
 - Scone Shire Council
 - Singleton Shire Council
 - Greater Taree City Council
 - Wyong Shire Council
- (b) State Government:
 - Department of Housing
 - Department of Land and Water Conservation
 - Department of Urban Affairs and Planning
 - Roads and Traffic Authority
- (c) Utilities:
 - Hunter Water Corporation
- (d) Community:
 - Hunter Catchment Management Trust
 - Brisbane Waters and Gosford Lagoons Catchment Management Committee, Tuggerah Lakes Catchment Management Committee, Lake Macquarie Catchment Management Committee, Karuah-Great Lakes Catchment Management Committee, Manning Catchment Management Committee
- (e) Construction Industry:
 - Housing Industry Association
 - Master Builders' Association
 - Urban Development Institute of Australia

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This document provides a uniform Policy and Code of Practice for Erosion and Sediment Control for the Central Coast, Hunter, Karuah-Great Lakes and Manning Region local government areas. The objectives of the Policy and Code are:

- To prevent land from being degraded by soil erosion or unsatisfactory land and water management practices
- To protect streams and waterways from being degraded by erosion and sedimentation caused by unsatisfactory land and stormwater management practices
- To promote and protect biodiversity,

In this region various Councils, Catchment Management Committees and State government agencies have proposed policies and codes for erosion and sediment control. However there is currently no uniform or comprehensive policy adopted by all local governments to guide land users in minimising erosion and sedimentation. Publication of the Lower Hunter-Central Coast Regional Environmental Management Strategy (LHCCREMS) has led to a desire within the local government community to provide a consistent Regional Policy and Code of Practice.

Accordingly, a partnership was formed between the LHCCREMS Steering Committee, Department of Land and Water Conservation (DLWC) and the Hunter Catchment Management Trust (HCMT) to coordinate efforts to achieve this. The Project targeted the Central Coast, Hunter, Karuah-Great Lakes and Manning regions and undertook an extensive consultation process. A questionnaire was circulated requesting feedback from local government, agencies and industry regarding the acceptance by these organisations of erosion and sediment control policies and/or guidelines and a review of existing relevant documents available in the region conducted. A consultative working group was formed to guide the program, and a series of workshops conducted with cross-divisional representatives of Councils. The document underwent extensive peer review throughout its development.

The basic document:

- Defines the problem
- Explains the role of the Policy and Code of Practice in reducing erosion and accelerated sedimentation
- Contains the Regional Policy and Code of Practice for Erosion and Sediment Control

These are in a general form for all Councils to adopt.

The Appendices support the implementation of the Code with a model set of standard diagrams and conditions.

The second and separate document contains a range of Erosion and Sediment Control clauses additional to the Code of Practice. Council adoption of these clauses in addition to the basic Code of Practice can enhance coverage for the following situations:

1. Activities of Councils and other authorities
2. Land subdivision
3. Building construction, and
4. Other non-urban area activities.

The Policy and Code are presented here for consideration and adoption by all Councils of the region. It is intended to be a basis for erosion and sedimentation control management by local government. This document is produced for Council administrative purposes, and is not targeted at the general community. (It is proposed that separate documents will be developed for community awareness and implementation of the Code.)

It is recommended that all participating Councils:

- 1) Adopt as a minimum standard :

Regional Erosion and Sediment Control Policy
Regional Erosion and Sediment Control Code of Practice

and where appropriate, to either wholly or in part
- 2) Adopt the additional clauses provided in document 2, Erosion and Sediment Control Code of Practice for Councils and Other Authorities

Once the regional Policy and Code of Practice is endorsed by Council, one of the following will apply:-

- Council adopts the minimum standard and uses this document to guide the implementation of Council's Erosion and Sediment Control Policy, or
- Council adopts the minimum standard plus the additional clauses, either wholly or in part, contained in document 2.

Using the Table provided in this document Council is requested to advise the Project Coordinating Committee of the standards they have adopted for inclusion in a final published document. This will ensure that each participating Council has its own tailor made code within the regional framework.

Richard Henry (editor)
DLWC Newcastle.

Meredith Laing
LHCCREMS

Sharon Vernon
Hunter Catchment
Management Trust

Erosion and Sediment Control - Why a regional approach?

Section II

Erosion and sedimentation has occurred as a result of development within the Council area. The effects of sedimentation can be seen in:

- blocked stormwater drainage systems
- damaged transport and utility infrastructure
- dust
- environment scarring, habitat degradation and scarring
- increased flooding due to reduced channel capacity
- infilling of lakes and tributary streams
- increased nuisance aquatic plant growth and algal blooms
- degradation of fishery habitats, and
- decline in water quality of receiving waters.

The community sees erosion as a major issue affecting the environment. Increasing community awareness of this environmental problem has generated a persistent demand for improved catchment management.

This document proposes a Policy and basic Code of Practice for adoption throughout the Central Coast, Hunter, Karuah-Great Lakes and Manning regions. It is intended as a statement of prudent conduct and not as a design, construction or operation manual.

Council and the proponent need to agree on and maintain a set of work standards and references. This requires consistent, effective communication. The technical and site problems associated with erosion and sediment control can be complex. Proponents may need a multi-disciplined team approach to effectively design and implement a management plan.

Legal Requirements

Section III

Failure to comply with the requirements of this Code of Practice may result in action being taken by Council, or another responsible authority, under relevant legislation. Proponents need to be aware of the extensive amount of legislation relating to the protection of soil, water, habitat and land resources of the NSW environment.

Farrier, D. (1993) "The Environmental Law Handbook - Planning and Land Use in NSW" (2nd Edition), provides a useful account of the relevant legislation which can be summarised as follow: -

- (a) **Environmental Planning and Assessment Act 1979** - The State's planning and development processes are primarily controlled by this Act. It requires the preparation of Environmental Planning Instruments (Part III), such as Local Environment Plans (LEPs) and the undertaking of environmental impact assessments in the form of EISs or SEEs (under Parts IV or V). The potential for soil erosion and other landscape impacts have to be considered by the consent authority when making approval decisions (Section 90(1) g & m)

Administered by the Department of Urban Affairs and Planning (DUAP).

- (b) **Protection of the Environment Operations Act 1997** - brings together a number of previously key pollution statutes under a single Act. These include the Clean Waters Act 1970 and The Environmental Offences and Penalties Act 1989 which were previously the key statutes through which pollution of waterways was regulated and enforced. The POEO Act provides for the imposition of penalties for pollution offences in 3 Tiers. It also provides for the issuing of three kinds of Environment Protection Notices; Clean Up Notices, Prevention Notices and Prohibition Notices.

- (c) **Soil Conservation Act 1938** - provides for the conservation of soil resources and for the mitigation of erosion. It allows prosecution of developers and landholders where action or failure to act caused soil erosion or land degradation (Section. 15A, 18 or 22). The Protected Lands provisions (Section 21C) require the issuing of an authority under the Act prior to disturbance of vegetation within steeply sloping terrain, in riparian lands or in otherwise sensitive lands.

Administered by the Department of Land and Water Conservation (DLWC).

- (d) **Local Government Act 1993** - places responsibility with local Councils to properly protect, restore, enhance and conserve the environment, which has an indirect bearing on the development approval and Council operations. Administered by the Department of Urban Affairs and Planning (DUAP).

- (e) **Catchment Management Act 1989** - objective is to bring about the coordinated and sustainable use and management of land, water, vegetation and other natural resources on a catchment basis. It relies on voluntary cooperation of the community and government, rather than a regulatory approach.

Administered by the Department of Land and Water Conservation (DLWC).

- (f) **Rivers and Foreshores Improvement Act 1948** - provides for the protection and improvement of protected waters (i.e., most rivers, lakes, In

lagoons and estuaries) and the associated protected lands, (i.e., beds, banks, shores and land within 40 metres of these waters. A permit is required under this Act for any activity that may interfere with the flow of these protected waters or for any excavation or removal of material from protected lands.

Administered by the Department of Land and Water Conservation (DLWC).

- (g) **Crown Lands Act 1989** - any activities occurring on Crown Lands or lands adjoining, have to be authorised under this Act, generally through a licence, lease or reserve. Activities must be in accordance with the Principles of Crown Land Management which stress the protection of soil, water and other environmental values (Section 11).

Administered by the Department of Land and Water Conservation (DLWC).

- (h) **Coastal Protection Act 1979** - provides for the protection, maintenance and restoration of the environment of the coastal region. Consent or concurrence under this Act is required where there is no existing environmental planning instrument or where a significant engineering or mining project is involved. It applies over the coastal zone which generally includes the beach front, estuaries and adjoining wetlands, and offshore areas to 3 nautical miles.

Administered by the Department of Land and Water Conservation (DLWC).

- (i) **Other Legislation** - various other legislation relating to specific land uses provides for the protection of soil and landscape resources including the Mining Act 1992, Forestry Act 1916, Pesticides Act 1978, Environmentally Hazardous Chemicals Act 1985 and the Waste Disposal Act 1970; Threatened Species Conservation Act 1995; National Parks and Wildlife Act 1974; Native Vegetation Conservation Act 1997; Roads Act Regulation 1993; and Fisheries Management Act 1994.

- (j) **Relevant Government Policies** - A number of NSW Government policies also provide for the protection of soil and landscape resources and influence the decision making process of NSW Government agencies. Important relevant policies and regulations include:

- SEPP No. 14 - Coastal Wetlands
- SEPP No. 19 - Bushland in Urban Areas
- SEPP No. 26 - Littoral Rainforest
- Total Catchment Management (TCM) Policy
- NSW State Rivers and Estuaries Policy
- NSW State Wetlands Policy
- NSW State Coastal Policy
- NSW State Soils Policy
- NSW State Tree Policy

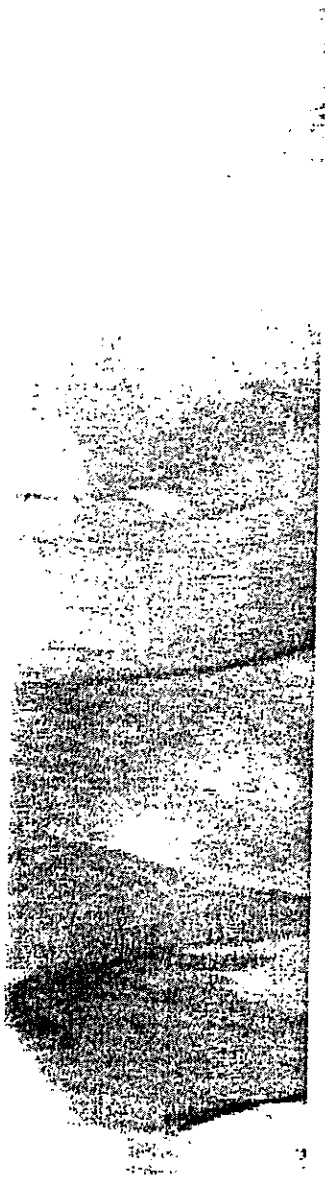


Penalties For Non-Compliance

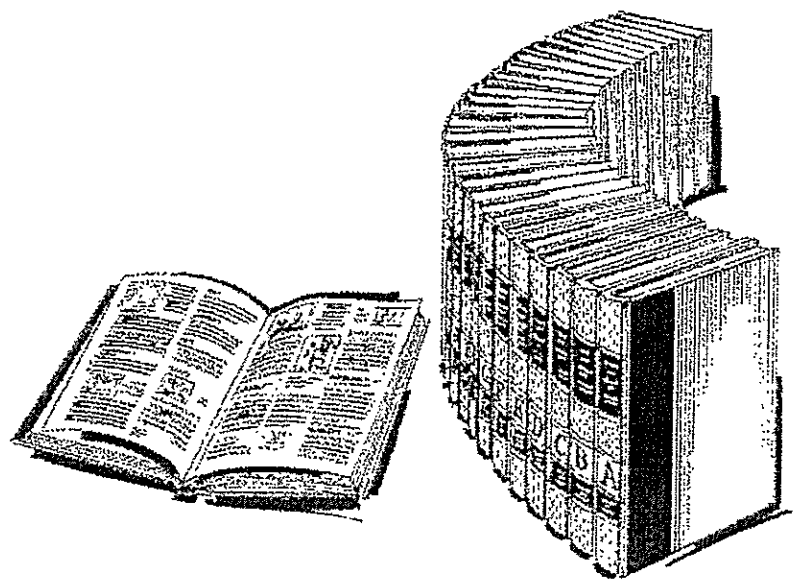
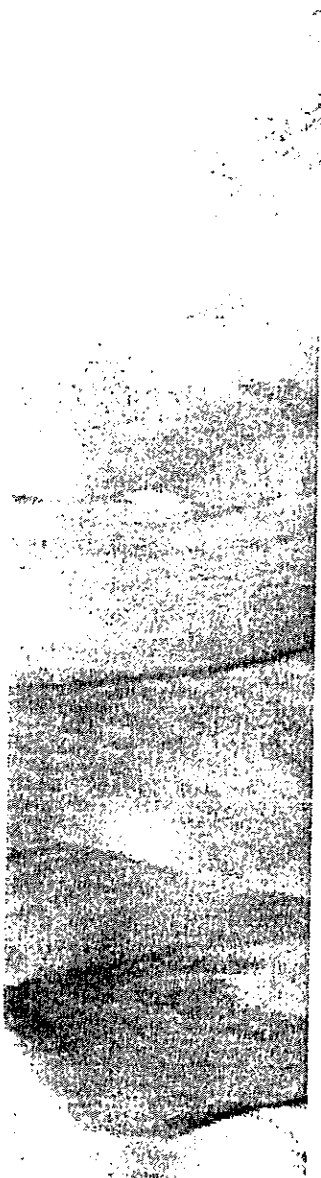
The Protection of the Environment Operations Act (1997) is the most likely legislation to be breached regarding sedimentation offsite by a proponent from an approved development/activity. Breaches of this Act incur penalties through a three tier charge system. The fines may be imposed by Courts after action is taken by the Environment Protection Authority or other appropriate regulatory authority.

In order to improve the community awareness of this penalty system, the following outline is provided as at July 1999.

- (a) Tier 1 Offences are the most serious. They involve the wilful or negligent disposal of waste in a manner that harms or is likely to harm the environment, or wilfully or negligently causing a substance to leak, spill or otherwise escape in a manner that harms or is likely to harm the environment. Such offences can result in fines for corporations up to \$1,000,000 or for individuals up to \$250,000 and/or 7 years imprisonment.
- (b) Tier 2 Offences typically involve serious or significant offences. Water pollution is prohibited under s120 of the Act. The maximum penalty for corporations is \$250,000 and for individuals \$120,000.
- (c) Tier 3 Offences are those of a more minor nature. These offences are dealt with by infringement notices and will be prescribed by regulation. The maximum penalty for these offences is \$1,500.



The Regional Policy



Preamble

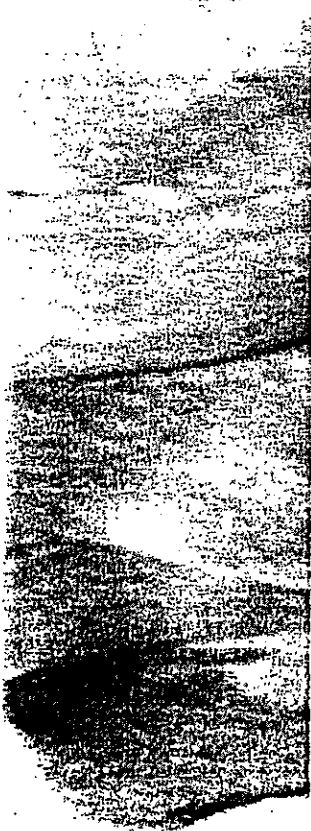
Council's goal is to help achieve a healthy, productive and diverse catchment. Erosion of soil as a result of disturbance or mismanagement of land is inconsistent with this goal.

Policy Objectives

The Central Coast, Hunter, Karuah-Great Lakes and Manning Regional Erosion and Sediment Control Policy is:

- To prevent land from being degraded by soil erosion or unsatisfactory land and water management practices
- To protect streams and waterways from being degraded by erosion and sediment caused by unsatisfactory land and water management practices.
- To promote and protect biodiversity

Policy Statement

- 
- (a) Under this Policy, Council will develop, implement and enforce a uniform set of soil conservation and stormwater management standards. They will control planning and management of all forms of private and public development or activities within the area.
 - (b) This Policy will be implemented via a Code of Practice - Erosion and Sediment Control. The Code aims to improve land and water management by application of these principles:
 - to conserve vegetation cover on land through control of the location, timing, extent and nature of clearing
 - to minimise erosion of soil through control of surface water flow paths and volumes across disturbed sites
 - to intercept and contain erosion products on disturbed sites by requiring installation of sediment traps or equivalent measures. This will avoid transfer of mobilised sediment and other pollutants to adjoining land and watercourses
 - to ensure prompt and effective stabilisation of disturbed land through control of the location, timing, extent and nature of rehabilitation and landscaping measures.

Policy Application

- (a) This Policy applies to any activity that involves or could involve:
 - disturbance of or placing fill on the soil surface, and/or changes to the contours of the land
 - change in the rate and/or volume of runoff flowing over land, or directly or indirectly entering "waters".
- (b) The Policy will apply to all proposals in accordance with Council Code of Practice - Erosion and Sediment Control.
- (c) Council will monitor the implementation and enforcement of the Code of Practice - Erosion and Sediment Control and review it as required.
- (d) Council will implement this Policy by the application of the Code of Practice - Erosion and Sediment Control in all its activities. Council contractors and public authorities/utilities who operate within the local government area will also be expected to implement this Code of Practice.

Policy Intent

This Policy is intended to cover all activity in the Council area that may or can pollute receiving waters as defined by the Protection of the Environment Operations Act 1997. The Code of Practice is provided to cover the whole process of development and construction, from initial planning to final site stabilisation.

The Policy will be implemented through Council's day to day interaction with the construction / development industry and the community.

The adoption and application of these conditions for erosion and sediment control give a uniform basis for development in the region. The objectives of this Policy are consistent with the guidelines of Ecologically Sustainable Development.

Erosion and Sediment Control Plans

Section V

Preamble

The Erosion and Sediment Control Plan (ESCP) and schedule of works implementation plays an integral part in the planning and design stage of a development or project.

An ESCP is essential for any development with potential to cause significant soil erosion and sedimentation. The greater the potential for these impacts the more detailed the plan. For example, a small development may require a simple sketch with accompanying notes but a large complex development would need a comprehensive plan, documentation and design/construction data.

An ESCP, developed to the Department of Land and Water Conservation standards, will be required to gain development consent, a Construction Certificate or Complying Development Certificate. The ESCP must be approved before commencement of site works.

Effective erosion and sediment control on a site can only be achieved by planning and implementing measures as a part of the construction proposal.

Aims of an Erosion and Sediment Control Plan

- To demonstrate that appropriate controls are planned
- To address all aspects of site disturbance, erosion, sediment control
- To address site rehabilitation for the duration of the project
- To provide a mechanism for any remaining exposed soil to be treated and for ongoing site maintenance
- To cover the contingency of change or delay in the project implementation, activity or work scope.

Erosion and Sediment Control Strategy

For major proposals that are staged over an extended period Erosion and Sediment Control Strategies may be required in addition to staged Erosion and Sediment Control Plans and schedules of works implementation. The fundamental issues are:

- Erosion control measures need to be applied within the site to minimise erosion
- Acknowledge that some erosion will occur, and to take steps to intercept and retain sediment within the work site.

Erosion and Sediment Control Plans

If required, the ESCP should be prepared by a suitably accredited or experienced practitioner. It can be a "stand alone" document or incorporated into a site management or construction plan that shows drawings and notes that site personnel can fully interpret. Such plans are not limited to erosion and sediment control, but may also address other water quality and / or quantity issues during the construction and operational stages of an activity.

"An ESCP is an evolutionary document and should not be compared to an engineering plan. The latter shows a system of works which have fixed locations. In contrast, the ESCP is liable to show conceptual locations of various systems (e.g. sediment fences, sediment traps, sediment basins) which need to be formally located at the commencement of construction in line with commonsense and best construction practice. Further refining of the plan will need to be done as the works progress and in anticipation or response to prevailing weather conditions"..... P. Dwyer (1997)

Broad Structure of Erosion and Sediment Control Plans

The degree of detail supplied by the proponent to Council depends on:

- the scale of the activity
- the complexity of the site characteristics
- the sensitivity of the adjoining environment.

Where an Erosion and Sediment Control Plan is required it should be prepared in accordance with the broad structure set out below. The ESCP must be submitted to Council with all necessary supporting information to allow a critical review and approval.

(a) **Site Characteristics** - including:

- Locality plan (1:1000 Scale)
- Existing contours data
- Catchment area boundaries
- Principal geographic features
- Critical natural areas (eg., wetlands)
- Location and limitations of major soil types
- Location, nature and condition of existing vegetation
- Soil subsidence
- Climatic data including rainfall and storm events.

(b) **Clearing and Disturbance of Site** - including:

- Nature and extent of vegetation to be cleared
- Scheduling and time of proposed disturbance
- Final site contours data
- Identify areas of cut and fill, location of soil stockpiles and spoil/vegetation dumping proposals.

(c) **Existing and Proposed Drainage Patterns** - including:

- Catchment boundaries
- Existing watercourses flowing through or adjacent to the site
- Location and extent of impervious surfaces
- Location and capacity of the proposed temporary and permanent site drainage or stormwater system.

(d) **Erosion Control Practices** - including:

- Location, design criteria and construction details of temporary and permanent structural and vegetative measures
- Scheduling details
- Monitoring and maintenance details.

(e) **Sediment Control Practices** - including:

- Location, construction details and design criteria of temporary and permanent structural and vegetative measures
- Scheduling details
- Monitoring and maintenance details.

(f) **Rehabilitation Program** - including:

- Location of temporary and permanent revegetation sites
- Materials and species selection
- Application and planting methods
- Types and rates of fertilisers and other soil ameliorants
- Mulching details
- Scheduling details
- Monitoring and maintenance details.

Plan Variations

An ESCP needs to demonstrate that appropriate controls have been planned to minimise erosion and soil movement both on and off the site. The plan needs to include specifications and or calculations which illustrate that the control measure has design criteria and a completed capacity that exceeds the calculated output anticipated from the catchment during the proposed project or stage.

Review and variation to the original ESCP may be required for each stage within an extensive or long term project. However where site conditions necessitate plan modification, changes must be endorsed by Council.

Further Information

Due to the range of developments undertaken and the varying characteristics of individual sites, the location and combination of erosion and sediment control measures must be specifically designed for each individual development. This Code of Practice outlines the basic control methods to be used. **Because of the diversity of site problems, use or promotion of prescriptive or model ESCPs to suit all site situations for the submission of Development Applications is not encouraged.**

It is also recommended that-

(a) in complex situations the designer of the ESCP refers to the following

- Managing Urban Stormwater – Soil & Construction (1988). NSW Department of Housing.

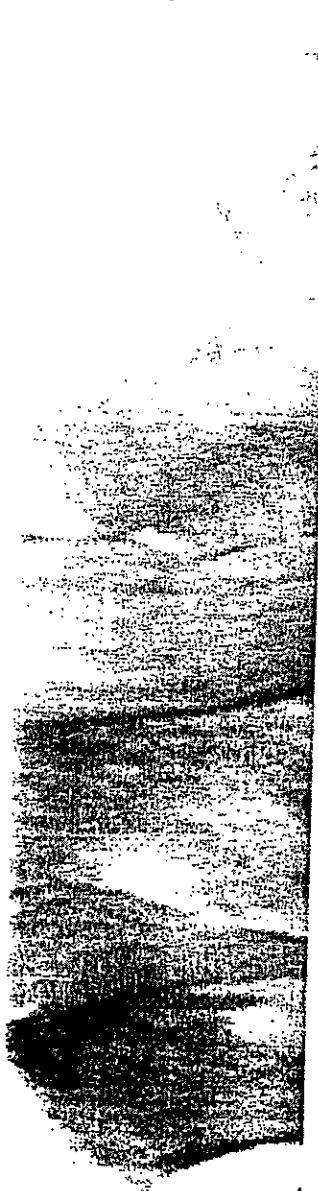
- (b) Expert advice on the preparation of ESCPs is available from the offices of the Department of Land and Water Conservation, at Newcastle, Gosford, Taree, Singleton and Muswellbrook. DLWC offices can also supply field guides, brochures, technical manuals, and standard diagrams on erosion and sediment control.

Diagrams

A Drafting Program detailing 35 erosion and sediment control practices is available from the Department of Land and Water Conservation (Newcastle) to assist in the standardisation of plan presentation.

Sample Erosion and Sediment Control Plan

The following sample of a residential development ESCP is provided to guide the proponent in the creation of a site specific drawing for submission to Council.



SAMPLE PLAN

EROSION AND SEDIMENT CONTROL PLAN

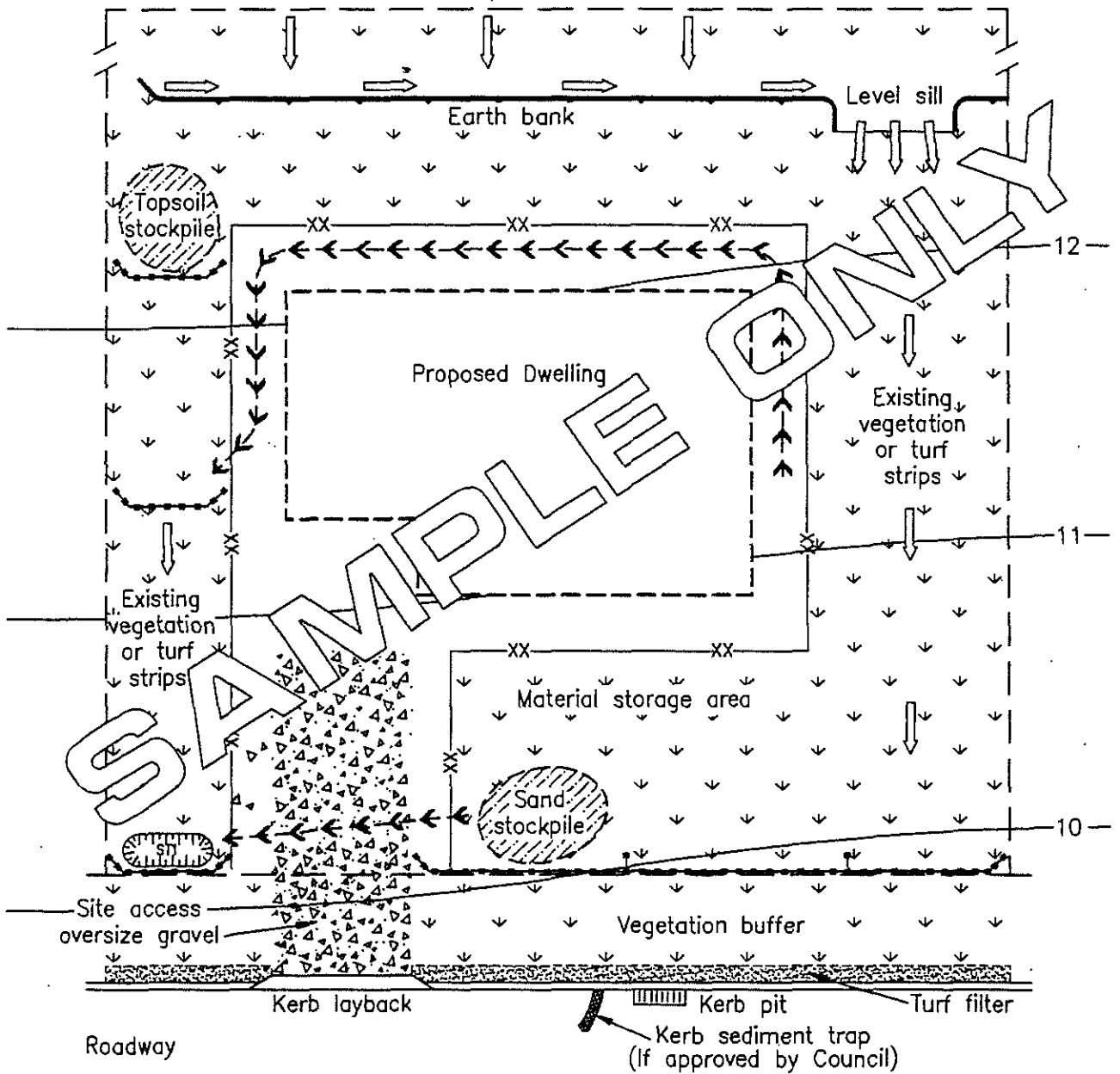
Dwelling Construction

LEGEND:

- | | | | |
|---------|-----------------------|-------|--------------------|
| — — — | Property boundary | ←←←← | Diversion drain |
| —xx— | Extent of disturbance | ~~~~~ | Sediment fence |
| - - - - | Dwelling site area | | Kerb turf filter |
| —10— | Contour | ⊗ | Sediment trap |
| — | Earth bank | ⌒ | Kerb sediment trap |

NOTES:

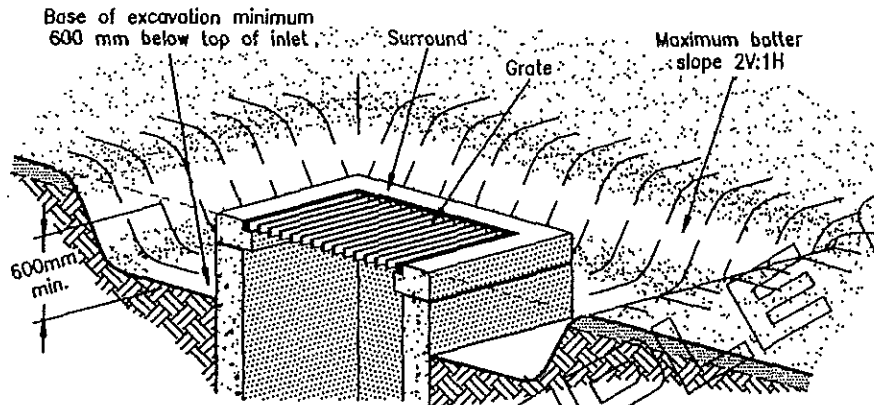
1. All runoff and sediment control structures will be maintained in a functional condition.
2. All vegetation outside the building envelope will be retained.



EROSION & SEDIMENT CONTROL DIAGRAM
 For: Mr. & Mrs. A.B. & C.D. AVERAGE
 On: Lot 3, D.P. 456789,
 NORMAL STREET, STANDARTOWN

Prepared by: R.H.
 Drawn by: K.S.
 Scale: 1:200
 Date: 11/11/97

EROSION AND SEDIMENT CONTROL PRACTICE - Example Diagrams

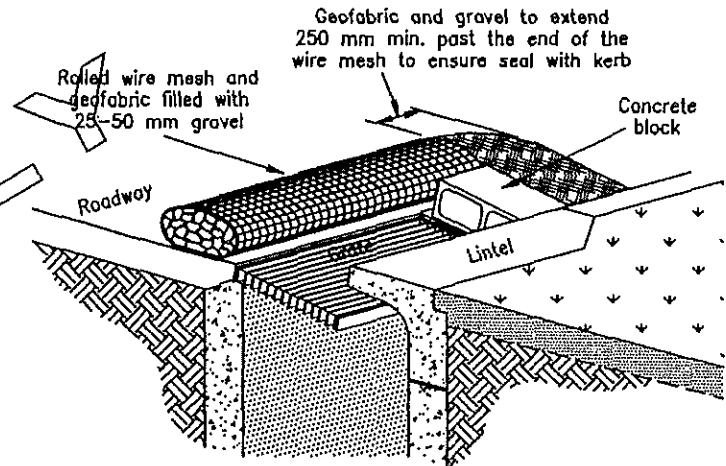


**DROP INLET SEDIMENT TRAP
EXCAVATED CONSTRUCTION**

SWMP-030

Not to Scale

Source: DLWC

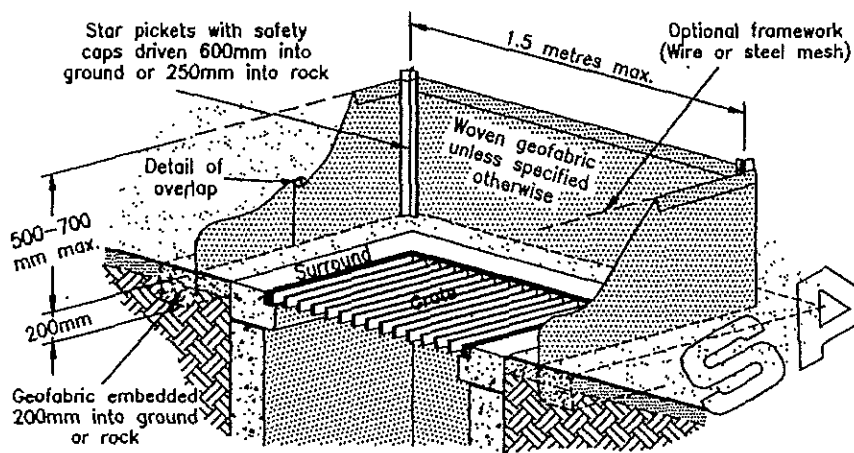


**GRATED KERB INLET FILTER
GRAVEL/GEOFABRIC CONSTRUCTION**

SWMP-034

Not to Scale

Source: DLWC

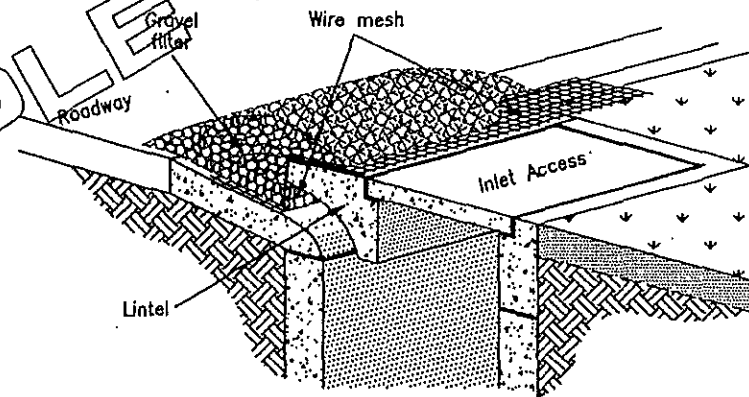


**DROP INLET SEDIMENT FILTER
GEOFABRIC CONSTRUCTION**

SWMP-031

Not to Scale

Source: DLWC



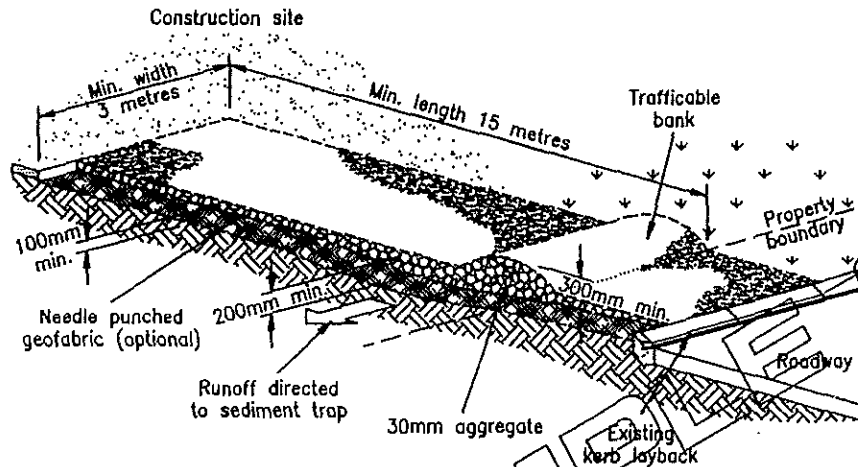
**KERB INLET FILTER
GRAVEL CONSTRUCTION**

SWMP-235

Not to Scale

Source: DLWC

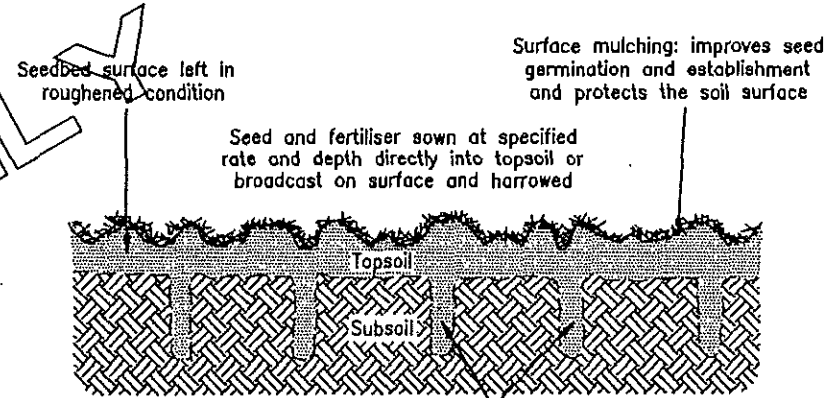
EROSION AND SEDIMENT CONTROL PRACTICE - Example Diagrams



SITE ACCESS GRAVEL CONSTRUCTION
Not to Scale

SWMP-037

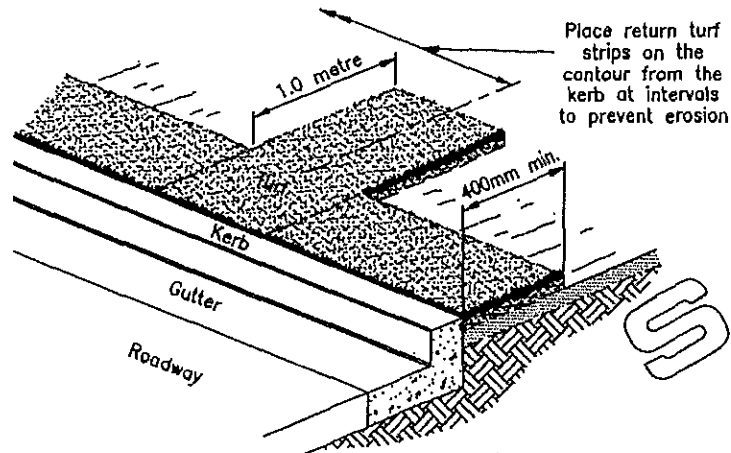
Source: DLWC



SEEDBED PREPARATION
Not to Scale

SWMP-009

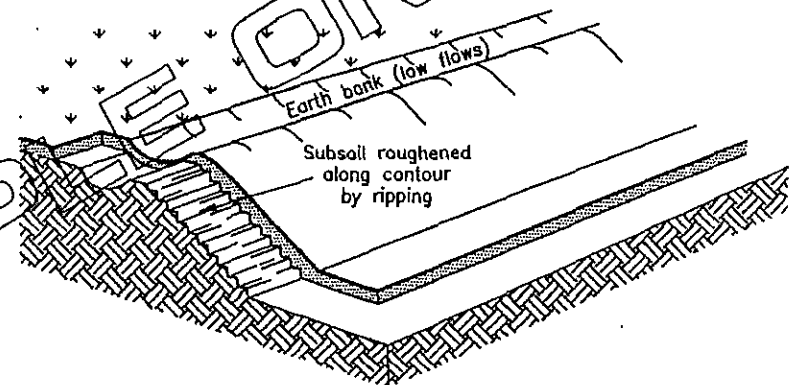
Source: DLWC



KERBSIDE TURF STRIP
Not to Scale

SWMP-038

Source: DLWC



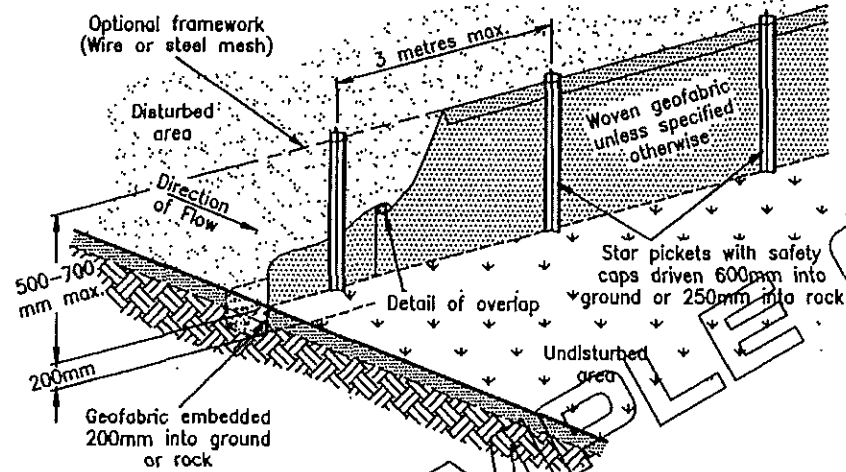
NOTES: Topsoil depth:
75mm min. if batter flatter than 1(V):4(H)
40-60mm if batter steeper than 1(V):4(H)
Specialised techniques:
Required if batter steeper than 1(V):2(H)
Bank and channel to be revegetated after construction.

REPLACEMENT OF TOPSOIL ON BATTERS
Not to Scale

SWMP-015

Source: DLWC

EROSION AND SEDIMENT CONTROL PRACTICE - Example Diagrams

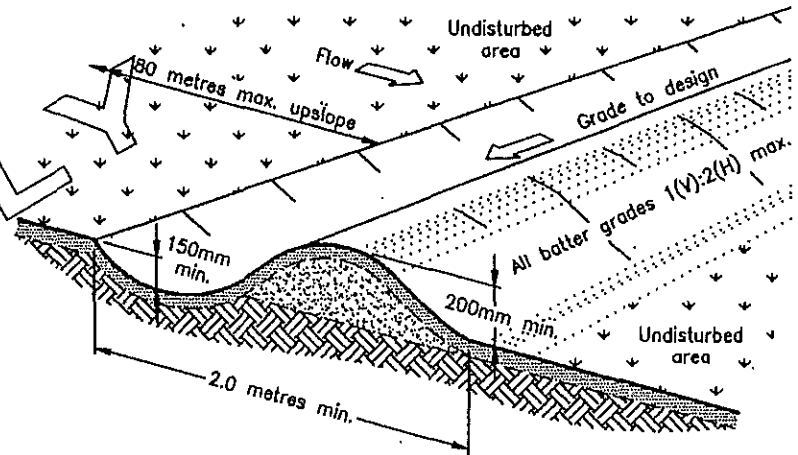


SWMP-011

SEDIMENT FENCE

Not to Scale

Source: DLWC

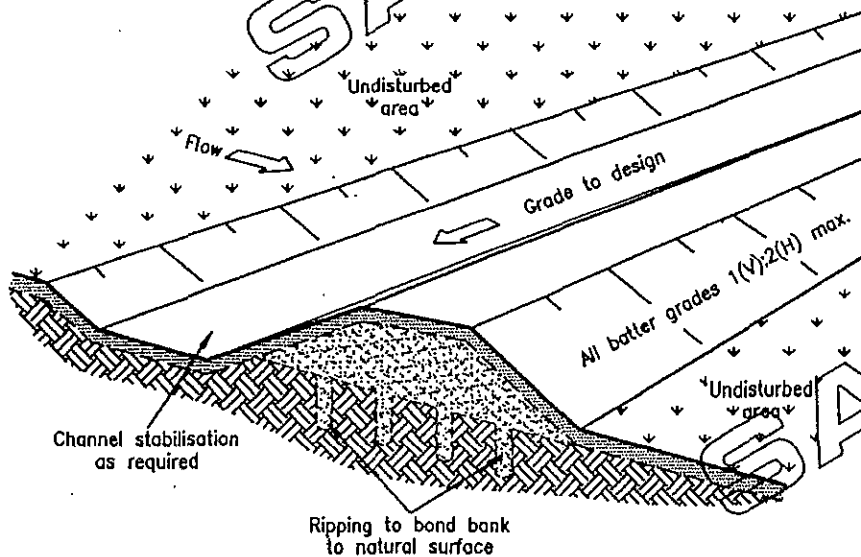


NOTE: Bank and channel to be revegetated after construction.

EARTH BANK (LOW FLOWS)

Not to Scale

Source: DLWC

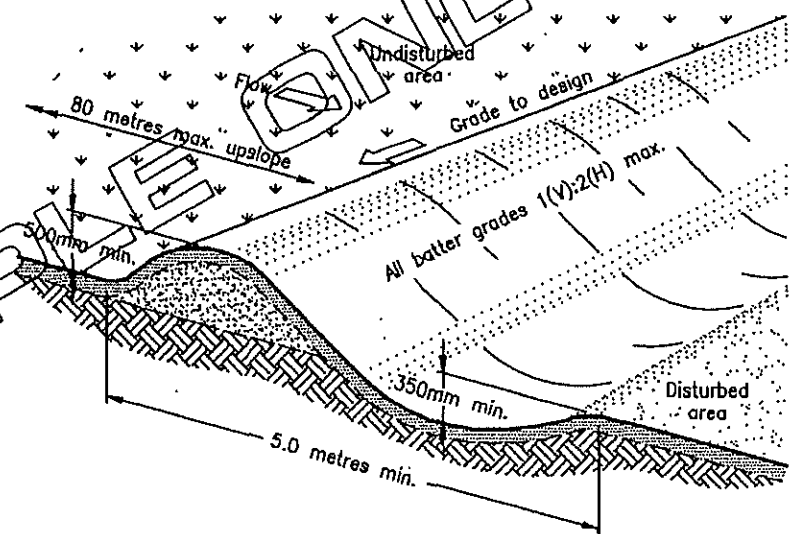


NOTE: Channel and bank to be revegetated after construction.

EARTH BANK (HIGH FLOWS)

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Source: DLWC



NOTE: Bank and channel to be revegetated after construction.

EARTH BANK (BACKPUSH)

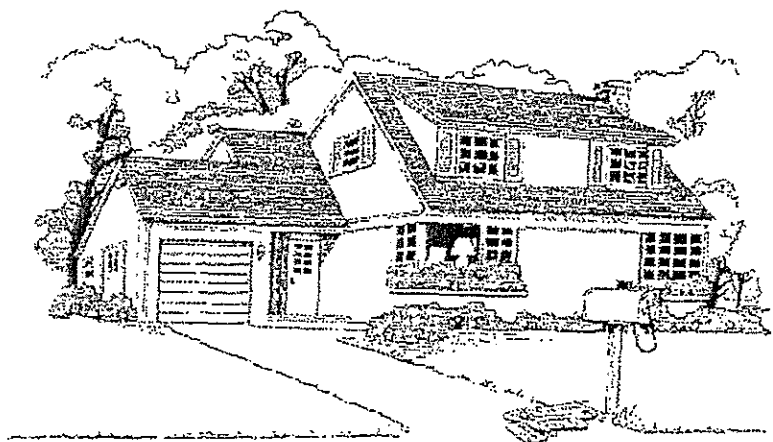
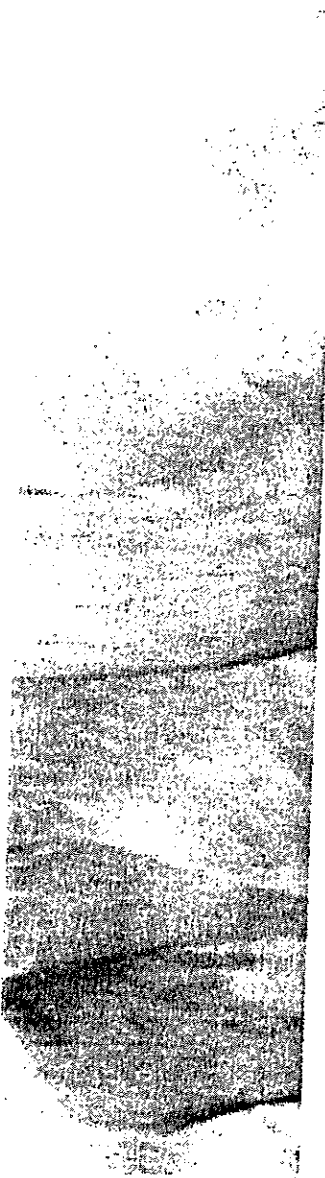
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Source: DLWC

SWMP-018

SWMP-117

The Code of Practice



The Code of Practice Section VI

1. Code Adoption

- (a) Council is encouraged to adopt the Erosion and Sediment Control Codes of Practice contained within this document to provide a minimum uniform regional administrative platform.
- (b) The enhanced codes contained in the document called 'Erosion and Sediment Control, Additional Clauses for Councils and Other Authorities - Document 2' are provided for Council consideration.
- (c) A review of all Council adopted Codes of Practice clauses shall be completed after a twelve month trial period to determine effectiveness and to recommend further standardisation.

2. Code Coverage

- (a) This Code of Practice relates to all private and public building works, developments, subdivisions and activities subject to the assessment and consent / approval of Council under the provisions of Parts 4 or 5 of the Environmental Planning and Assessment Act 1979 and/or under the Local Government Act 1993 for any proposal or practices which will or could involve:
 - the disturbance of or placement of fill on the soil surface, and/or result in change to the contours of land
 - change in the rate and/or volume of runoff flowing over land or directly or indirectly entering in "waters".
- (b) To satisfy the requirements of the Policy on erosion and sediment control a proponent shall either:
 - prepare and implement an Erosion and Sediment Control Plan; or
 - implement erosion and sediment control measures specified in (or attached to) the building application, development or activity specification.

The requirements for a Plan or control measures depend on the area to be disturbed and the type of activity, as set out in the table below.

Disturbance	Activity Type	Scope of Works
<250 m ²	House extensions, small driveways, garages	No Erosion and Sediment Control Plan required, except for environmentally sensitive and very steep areas, but proponents are expected to follow the general principles of the code of practice
250 to 1000 m ²	Houses, small commercial development, long driveways, small subdivisions	Erosion and Sediment Control Plan and schedule of works implementation required
1000 to 2500 m ²	Houses, medium/high density houses, small civil infrastructure / commercial / industrial development, small subdivisions, etc	Erosion and Sediment Control Plan and a Landscape Plan with their associated schedule of works implementation required
>2500 m ²	Extensive medium/high density houses, large civil infrastructure / commercial / industrial development, subdivisions, etc	Erosion and Sediment Control Plan and a Soil and Water Management Plan and a Landscape Plan with their associated schedule of works implementation required

3. Compliance Responsibility

The proponent is responsible for the full cost of all work required to comply with the Code of Practice - Erosion and Sediment Control, as determined by Council. Off-site damage resulting from the activity is also the responsibility of the proponent.

- All erosion and sediment control measures or works and rehabilitation measures must conform to or exceed the specifications or standards set out in the following text or its equivalent:-
 - Managing Urban Stormwater – Soil and Construction (1998) NSW Department of Housing.

Works must be executed so as to disturb as little of the site as possible, and stabilise the site as quickly as possible. A staged Erosion and Sediment Control Plan and/or strategy is required for proposals scheduled to be undertaken over more than one year.

An approved Erosion and Sediment Control Plan with associated schedule of works for implementation shall demonstrate:

- that selected measures have a design life that exceeds the project or stage
- a capacity to manage the anticipated output from the catchment

If the site disturbance is greater than 2500 m², the proponent will have all construction and maintenance associated with erosion and sediment control measures regularly inspected and supervised by personnel who have appropriate training and/or demonstrated knowledge in erosion and sediment control. This will ensure the proponent:

- will act with due diligence during the design, implementation and maintenance of the control
- will re-design and undertake modifications or changes to approved works or practices, as required or directed.

4. Community Awareness / Promotion of Erosion and Sediment Control Best Practice

Council endorses the Code of Practice - Erosion and Sediment Control. Council staff, contractors and those of other public authorities/utilities who operate within the Council area will be encouraged and expected to implement this Code of Practice.

Council shall lead the community in erosion and sediment control or land rehabilitation by adhering to this Code of Practice in all works including the management, construction and maintenance of road, drainage, footpath, quarries and excavation or filling.

Council will set up a mechanism to implement, monitor and audit compliance.

Council will support environmental education and training that promotes its Erosion and Sediment Control Policy and Code of Practice.

5. Variations to the Code of Practice

Council can vary approval requirements under this Code in the following circumstances:

- On allotments sized less than 450 square metres. In these circumstances an on-site determination of suitable erosion and sediment control measures or negotiated contribution to other catchment works by the proponent will be made. This is required before formal plan submission where the small size of the allotment makes on-site control impractical.
- On very large allotments (greater than 5000 square metres) and/or rural situations. Here only minimum erosion and sediment control measures might be required, provided the proposed activity is surrounded by an appropriately wide vegetative filter strip and the intent of Code of Practice clause 6 is satisfied.

6. Planning and Designing Works

An Erosion and Sediment Control Plan shall be approved by Council. This plan will contain a schedule of works implementation that addresses all aspects of site or vegetation disturbance, runoff, flow rate change, erosion and sediment control and site rehabilitation for the duration of the project. Council will review the plan annually. However it will be modified by the proponent as required to achieve erosion and sediment control throughout the life of the development or activity. (Refer to Section V for detail on Erosion and Sediment Control Plans)

Prior Plan Approval

Submitted plans should follow the general principles of Total Catchment Management and Ecologically Sustainable Development as applied by Council's development policy for the specific catchment area.

Council Policy requires an Erosion and Sediment Control Plan and associated schedule of works implementation where required, to be technically assessed by an accredited person or organisation before approval is granted. The Plan and/or schedule may be approved before or with all domestic, commercial and industrial building works, development, subdivision or activity proposals.

Earthworks (including site clearing for the erection of a structure for which a development consent is not required) must not commence before any building permit or other approval is issued. The extent of disturbance shall be shown on the plan. The disturbed ground must not reach further than 3 metres from the outermost projection of the approved building or structure or land required for permanent access or car park.

Approved runoff and erosion control works must be installed before any work on the approved development begins.

7. Training

Council shall assist in disseminating information to industry / staff and the wider community on erosion and sediment control.

8. Vegetation Management

- (a) The management or removal of site vegetation shall comply with:
 - The principles of erosion and sediment control stated within Clause 6 (Planning and Design of Works) of this Code
 - Council Tree Preservation/Management Policy/Order
 - Relevant State Government legislation or regulation.
- (b) The Erosion and Sediment Control Plan will incorporate a schedule of works that illustrates the on-site vegetation management to be undertaken by the proponent.

9. Soil Erosion and Sediment Control

While carrying out any approved work covered by this Code, the proponent must minimise erosion on-site and retain sediment eroded by water or wind on the development site. This will involve as many of the principles and practices listed below as required to meet this objective:

- (a) Installation and maintenance of the erosion and sediment controls set out in the approved Erosion and Sediment Control Plan, and the associated vegetation clearing and works implementation schedule. (See Section V for advice on the process of plan preparation.).
- (b) Use of water runoff detention and sediment interception measures, where required. These will reduce flow velocities and prevent disturbed material (including topsoil, sand, aggregate, road base, spoil or other sediment) escaping the site or entering any adjacent lands or receiving waters.
- (c) For a proposal with a disturbed area greater than 5 hectares, the proponent must demonstrate that runoff frequency or peak downstream of the development will not be increased.
- (d) Sediment detention basins will be installed if total sediment volume calculated for the proposal catchment exceeds 150 cubic metres in the design Annual Recurrence Interval (ARI) 5 year storm event. These basins must be maintained until consent conditions are fulfilled.
- (e) Where the subsoils within the development site contain more than 10 % dispersible soils material, the proponent will capture and treat all runoff to a level specified by the EPA before discharge to receiving waters.
- (f) Wind erosion mitigating practices and associated sediment interception structures must be applied to the land to reduce wind erosion where required.

- (g) Appropriate water and wind erosion control measures will be in place before land is disturbed and maintained until effective land stabilisation is completed.
- (h) The proponent must control vehicular access to prevent sediment being tracked onto adjoining land and roads. Aggregate and any construction site sediment on sealed roads will be thoroughly swept and removed to prevent this material entering the drainage system. Runoff from access surfaces must drain into an approved sediment trap device, and be treated where required, before release from the development site.

10. Runoff Water Control

During the implementation of any approved work covered by this Code, the proponent must retain sediment eroded by water on the development site. This can be achieved by carrying out as many of the following principles and practices as are required to meet this objective:-

- (a) Intercept and divert all uncontaminated runoff around all areas to be disturbed. Alternatively runoff can be directed through these areas in a controlled manner.
- (b) Where Council decides water quality control works are necessary, it can accept them into open space calculations. Council may also accept non-structural measures for addressing water quality, such as a Section 94 contribution to stream bank protection / stabilisation or even community educational measures.
- (c) Connect all roof drainage to Council's stormwater management system immediately after the installation of roof material. Where this stormwater management system is not available, downpipes must discharge away from the building site onto a stable area within the property boundary. Install measures to control runoff from the downpipe discharge area to manage erosion and sedimentation.
- (d) Control all runoff from the proposed development likely to cause flooding or erosion of downstream watercourses with appropriate drainage, channel or detention works. These works can be located above, within or below the approved development site.
- (e) Ensure all drainage conduits and related structures are completed before they are commissioned. This includes all energy dissipaters and sediment control works.

11. Construction Site Management

- (a) There shall be minimal site disturbance. Site excavation will be designed and located to minimise cut and fill requirements. Measures to provide flow dissipation and scour protection within channels and at all pipe outlets must be installed.
- (b) No vegetation shall be removed before Council approval to commence works on any stage of the development.

12. Services and Utilities Management

Site disturbance for the installation of services and utilities will be minimised. Site excavation shall be designed and located so as to keep cut and fill requirements to a minimum.

13. Rehabilitation

The proponent will carry out progressive land surface stabilisation on all disturbed areas until the site is satisfactorily rehabilitated, and where appropriate, landscaped to the satisfaction of Council.

14. Topsoil and Stockpile Management

- (a) Topsoil will only be stripped from approved areas to a predetermined depth. It must be stockpiled separately from subsoil for re-use during site rehabilitation and landscaping, or removal if there is an excess. Subsoil spoil not required may be removed or placed on-site, in approved areas, shaped to appropriate land contours, topsoiled and stabilised by the proponent.
- (b) Stockpiles of topsoil, sand, aggregate, spoil or other material shall be stored at least 2 metres clear of any drainage line or easement, natural watercourse, footpath, kerb, road surface or established tree. Stockpiles must have measures in place to retain such materials on the stockpile.

15. Agriculture and Forestry

Council will consider and determine for adoption the additional codes contained in supplementary Document 2 "Additional Clauses" for the works carries out in non-urban areas. These are optional clauses which enhance this Regional Code of Practice and relate to Planning and Design of Works.

16. Erosion and Sediment Control Maintenance

All erosion and sediment control measures must be maintained at workable capacity or condition until permanent rehabilitation measures are fully operational.

17. Environmental Performance Bond

Council may require the proponent to lodge a bond. This is to ensure effective erosion and sediment control measures and rehabilitation works are implemented and maintained. The bond can be required for any activity deemed by Council including the following situations:

- **Proposals adjacent to environmentally sensitive areas**
- **Proposals with a disturbed area greater than 5 hectares**

- Proposals involving exposure/disturbance of the land surface within the bed and banks of a watercourse
- Proposals involving exposure/disturbance of the land surface for periods greater than 6 months.

18. Legislative Responsibilities

The proponent is responsible for satisfaction of all legislative requirements associated with the activity approval. Council will consider necessary action to be taken under relevant legislation if approved erosion and sediment control measures are not carried out. Options include: the charging of a re-inspection fee, the forfeit or partial loss of an environmental bond, the issuing of stop work notices or other legal action

19. Restoration of Damage

If the proponent or their agents cause damage to any structure or surface that is the responsibility of Council while carrying out works to comply with this Code, repairs will be at the proponent's cost.

20. Exempt Works

The following situations are exempt from this Code of Practice:-

- Emergency Situations** This policy does not apply to land uses and/or activities such as emergency flood mitigation or to emergency bushfire backburn operations. It also does not apply to other such specific land uses more appropriately addressed by separate policies. However, after the emergency situation has passed, remedial measures should be undertaken to address any erosion hazard and to rehabilitate the site in a manner consistent with the Code of Practice - Erosion and Sediment Control;
- Bushfire Management** Trails and tracks for bush fire prevention and control can be constructed and maintained provided they comply with the appropriate Council Bush Fire Prevention and Control Policy and Department of Land and Water Conservation's Guidelines for Fire Trail Construction and Maintenance, or a Plan prepared in accordance with section 41A of the **Bush Fires Act(1949)**; and
- Tree Preservation Order / Policy** Removal or management of vegetation within the site must be consistent with Council **Tree Preservation Order or Policy**. This may contain conditions that override clauses within the Code of Practice - Erosion and Sediment Control. For example, the proponent needs no additional approval to disturb the activity site for final rehabilitation, except on land outside their administration, such as footpath or nature strip, etc.

APPENDIX A — Model Set of Standard Conditions

Preamble

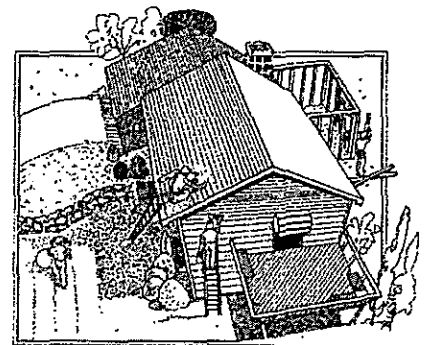
This section provides a set of generic standard conditions which Council can use according to the erosional sensitivity of a development site. The use of standard conditions will make it easier for both the authority and development industry to know what is required. This should increase compliance rates and decrease disputes between parties. Council may set conditions outside the generic set for any activity or development to cover areas of concern.

Standard Code Condition No.1

"For Commencement of Occupation or Use"

All consent conditions must be completed before occupation of or use of premises for the approved purposes.

Reason: to ensure that the proposal is carried out in accordance with the Environmental Planning and Assessment Act, 1979.



Standard Code Condition No.2

"Standard of Erosion and Sediment Control"

The capacity and effectiveness of all erosion and sediment control measures shall be implemented and maintained to the satisfaction of Council.

Reason: to ensure all erosion and sediment control measures / works are implemented on-site and maintained to a satisfactory standard to avoid pollution within the catchment.

Standard Code Condition No.3

"Specifications/Standards for Erosion and Sediment Control and Site Rehabilitation"

All erosion and sediment control measures/works, other pollution control and rehabilitation measures undertaken on the site shall conform to or exceed the specifications and standards contained in the current versions of:

- "Urban Erosion and Sediment Control" Handbook (DLWC)
- "Pollution Control Manual for Urban Stormwater" (EPA)
- "Soil and Water Management for Urban Development" (D of H).

Reason: to ensure that control of erosion, sedimentation, other forms of pollution or site rehabilitation, are carried out to standards as recommended by State Government authorities.

Standard Code Condition No.4

“Environmental Performance Bond”

- (a) The proponent or owner will provide a security bond of \$..... for site stabilisation and rehabilitation before any work commences. The bond will be fixed to CPI movement and adjusted July 1st each year. Calculation of the bond is based on 1997 dollar value at \$3,000 per hectare of disturbed land involving any earthwork, clearing or rehabilitation.
- (b) The bond will be released in full upon completion of the project if all erosion and sediment control consent conditions have been carried out throughout the development.
- (c) The proponent or owner will give written permission to Council to allow entry on to the site to carry out erosion and sediment control works deemed necessary to implement or maintain any approved Erosion and Sediment Control Plan measure.
- (d) Council reserves the right to recoup any cost associated with implementing remedial action from the lodged Environmental Performance Bond or at law.

Reason: to ensure the completed development will not result in any adverse impact upon the environment from soil erosion and sedimentation. The bond will be applicable to developments that have the potential to cause significant land degradation.

Standard Code Condition No.5

“Erosion and Sediment Control Plan (ESCP)”

- (a) Erosion and sediment control shall be in accordance with the approved Erosion and Sediment Control Plan(s) and schedule of works implementation numbered and dated....., submitted / drawn by, and other approval conditions applied by the Council.
- (b) An Erosion and Sediment Control Plan (ESCP) shall be prepared, approved and implemented before any work or activities begin.
- (c) The Plan will include scaled drawings and/or detailed specifications which can be easily understood and applied on-site by supervisory staff.
- (d) The ESCP shall be approved by Council, before or concurrent with approval of any Building Application or Engineering Plan.
- (e) ESCP implementation must be supervised by personnel with training / experience in erosion and sediment control, and site rehabilitation. Council reserves the right to determine appropriate qualifications or experience.
- (f) Council reserves the right to require erosion and sediment control measures or works to be carried out in addition to or instead of those approved.
- (g) A revised ESCP must be prepared at the commencement of a development's second year and annually reviewed / assessed for compliance of prior plan requirements.

Reason: to ensure effective environmental management and rehabilitation resulting from the building activity/development

Standard Code Condition No.6

"Vegetation Management"

- (a) No trees nor vegetation shall be removed or lopped without prior approval or as applies in Council's Tree Preservation Policy/Order.
- (b) Trees and other vegetation may be lopped or removed from the site of approved works, access structures and within 3 metres of approved buildings. All reasonable measures shall be undertaken to protect all other vegetation on the site from damage during construction.
- (c) All usable trees and shrubs shall be salvaged for site rehabilitation re-use, either as logs or woodchip and other material disposed of at an approved site.
- (d) The Department of Land and Water Conservation (DLWC) must approve before trees are removed from Crown Land and some areas of private lands. The DLWC or NSW Fisheries must give approval to remove or injure any tree on "protected land" and within a "river or foreshore".

Reason: to control clearing activities and minimise sedimentation of waterways and drainage systems in the catchment

Standard Code Condition No.7

"Earthworks Implementation and Erosion and Sediment Control Measures"

- (a) ESCP approved controls shall be installed before site vegetation is cleared.
- (b) Uncontaminated runoff shall be intercepted and diverted away from the disturbed area sites within the development. Runoff detention and sediment interception measures shall be applied to the satisfaction of Council to reduce flow velocities and to prevent any form of sediment escaping from the site.
- (c) Pollution control devices shall be installed and maintained to ensure there is no increase in the downstream levels of nutrients, litter, and other water borne pollutants. The capacity and effectiveness of runoff and erosion or pollution control measures shall be maintained at all times to the satisfaction of Council.
- (d) Topsoil shall only be stripped from approved areas. Topsoil shall be stockpiled in mounds no higher than 1 metre (where revegetation by the contained native seed source is proposed), and respread on all exposed areas to a depth of at least 100 mm on slopes flatter than 1:4 and 50mm on slopes up to 1:2, after final land shaping; for re-use during site rehabilitation and landscaping. Topsoil in excess of the generally 100 mm depth required to cover the completed site disturbed area, may be removed offsite, along with excess subsoil spoil. Excess subsoil spoil material may alternatively be located on-site, in approved areas, capped with topsoil and vegetated.
- (e) Stockpiled material shall be stored clear of any drainage line or easement, footpath, kerb or road surface and shall have measures in place to prevent the movement of materials from the stockpile.
- (f) Vehicle access location and road surface management shall prevent vehicles tracking pollutants off-site, to the satisfaction of Council.

Reason: to avoid pollution, including sediment entering and interfering with waterways and drainage systems within the catchment.

Standard Code Condition No.8

“Site Landscape Plan”

- (a) A detailed landscape plan and schedule of activity for the site must be submitted to Council for approval. A qualified or experienced landscape designer must prepare the plan. Landscaping works completed must be completed before the premises are occupied.
- (b) This plan can be combined with an Erosion and Sediment Control Plan and be submitted with the Building Application for approval before works begin.
- (c) The design and maintenance philosophy of the landscape plan will incorporate:
 - planting of native trees and shrubs, where deemed appropriate
 - utilising endemic site seed where deemed appropriate
 - reuse of topsoil from the development site
 - establishment of a stable ground cover (turf, seeded mulch or equivalent)
 - protection from vehicular traffic
 - screening of clothes drying areas and garbage receptacles from the public.

Reason: to ensure that the scenic quality of the locality is maintained and development does not result in sedimentation of waterways and drainage systems within the catchment.

Standard Code Condition No.9

“Environmental Management Plan”

- (a) An Environmental Management Plan for the development site will be prepared by a suitably qualified person. The Plan must at least incorporate the matters referred to in the Code of Practice - Erosion and Sediment Control.
- (b) All site works shall be carried out in accordance with the Plan. A suitably qualified or experienced person must supervise the implementation of the Plan. Site works must not commence before Council approves the Plan.
- (c) Council can require erosion or sediment control works to be carried out in addition to or instead of works specified in the approved Plan. This may occur if circumstances change during construction and those circumstances could not have been foreseen.
- (d) Council encourages supervision of earthworks on the development site by persons who have successfully completed an accredited Environmental Awareness Course or equivalent, as approved by Council or the Department of Land and Water Conservation.

Reason: to ensure effective environmental management and rehabilitation of the development site.

Standard Code Condition No.10

"Erosion and Sediment Control for Small Scale Building Projects"

- (a) Vegetation must not be removed or disturbed before Building Approval, unless exempt under the Council Tree Preservation/Management Policy/Order.
- (b) Removal and or disturbance of vegetation shall be confined to the basal area of the approved structures, the site(s) of permanent access, and land extending a maximum of 3 metres from the outermost projection of the approved building.
- (c) Additional ground disturbance on-site for landscaping work may be undertaken on-site without consent, if it satisfies the Code of Practice - Erosion and Sediment Control.
- (d) Topsoil shall only be stripped from approved areas. Where revegetation by the contained native seed source is proposed, topsoil for re-use during site rehabilitation and landscaping will be stockpiled in mounds no higher than one metre. Topsoil not required for landscaping or rehabilitation can be removed. Excess subsoil or spoil material may be removed or located in approved areas on-site, topsoiled and re-vegetated.
- (e) Stockpiled material shall be stored clear of any drainage line or easement, footpath, kerb or road surface and must be protected by suitable erosion and sediment control measures.
- (f) Trenches shall be backfilled, compacted, topsoiled and either turfed or sown with an approved seed / fertiliser mix.
- (g) Stormwater from roof areas must be linked to a Council approved stormwater disposal system as soon as roof covering is complete. The stormwater may be conveyed to:
 - Council's street gutter
 - An inter allotment drainage
 - A lake or watercourse
 - A rubble trench situated at least 3 metres from any building / boundary
 - A detention basin or settling pondin such a way as to prevent sediments being eroded from the site.
- (h) Vehicular access will be 3 to 5 metres per lane wide. To prevent tracking of sediment the site access must be lined with 200 mm of aggregate coarser than 40 mm (or another approved material) and placed on geotextile as required.
- (i) All disturbed areas shall be rendered erosion resistant within 14 days of completion.

Reason: to avoid pollution resulting from building activity entering waterways and drainage systems within the catchment.

Standard Code Condition No.11

"Permission to Enter and Undertake Erosion and Sediment Control Works"

The proponent will provide written permission to Council allowing site entry to implement erosion and sediment control works deemed required or in need of maintenance, in accordance with the approved ESCP. The cost of any such works shall be fully recouped from the proponent either from a lodged Environmental Performance Bond or at law.

APPENDIX B — Glossary of Terms

The following glossary of terms is proposed for use by Council in relation to this Policy and Code of Practice - Erosion and Sediment Control.

Activity	<p>in relation to this policy and Code means</p> <ol style="list-style-type: none">a) the erection of a building;b) the carrying out of work in, on, over or under land;c) the use of land or of a building or work; andd) the subdivision of land, and includes any act, matter or thing for which provision may be made under Section 26 of the Environmental Planning and Assessment (EP&A) Act and which is prescribed for the purpose of this definition, but does not include:<ul style="list-style-type: none">• any act, matter or thing for which development consent under Part IV of the EP&A Act is required or has been obtained;• or any act, matter or thing which is prohibited under any environmental planning instrument.
Approval	<p>means a licence or permission or any authorisation under Part V of the EP&A Act.</p>
Approving Authority	<p>means a Council, authority or determining body.</p>
Authority	<p>in relation to a development application, means:</p> <ol style="list-style-type: none">a) the Council having the function to determine the application; orb) the Minister or public authority or the Director where an environmental planning instrument specifies as having the function to determine the application.
Building Works	<p>includes building / structure or part thereof.</p>
Consent	<p>means a licence or permission or any authorisation under Part V of the EP&A Act.</p>
Construction Site	<p>is that portion of a site disturbed by the development and/or building and includes the areas where building materials are placed and access traversed by vehicles.</p>
Cultivation	<p>is the mechanical preparation of the soil required for the growing of crops/ pasture.</p>
Development	<p>in relation to land, means; the erection of a building on that land; the carrying out of a work in, on, over or under that land; the use of that land or of a building or work on that land; the subdivision of that land.</p>
Dispersible Soil	<p>is structurally unstable. In water it will break down into its constituent particles (clay, silt and sand). Highly dispersible soils are highly erodible and are associated with high exchangeable sodium and low soluble salt concentrations. In the absence of better defining criteria, soils that contain > 10 % dispersible material can disperse and need flocculation. Soil dispersability can be determined by laboratory tests.</p>
Earth Bank and Channel	<p>A bank is a ridge or embankment of compacted earth. A channel is an excavated earth drainage ditch or path used to intercept and direct runoff to a desired location.</p>

Erosion and Sediment Control Plan (ESCP)	is a plan showing how potential erosion and sedimentation on a given site resulting from approved building works, development or activity will be minimised or controlled.
Environmentally Sensitive Land	is land that is steeper than 18 degrees of slope; liable to degradation due to erosion, sedimentation, salinity/acidity, inundation by sand/soil or water, invasion by exotic vegetation; or native vegetation and wetlands
Landscape Plan	is a plan showing the location, type and quantity of vegetation and structural elements to be placed on the site to gain visual amenity and screen sections of the site from public view or use.
Level Spreader	A level spreader is an excavated outlet constructed at zero grade and level across the outlet edge.
Perimeter and Banks Channels	are earthen structures that collect and divert runoff and have a level spreader (level sill) outlet to prevent erosion at the discharge point.
Receiving Waters	means either <ul style="list-style-type: none"> a) natural water bodies, including rivers, streams (perennial or intermittent), flowing in natural channels with natural beds or in artificially modified channels, lakes, lagoons or wetlands, either naturally formed or artificially modified, or tidal waters, including bays, estuaries or inlets, or b) constructed water bodies including waterways, channels, canals, dams, ponds, or wetlands, lakes, bays or inlets no matter whether they are permanently or intermittently inundated with water.
Sediment	means both mineral or organic material that is being, or has been moved from its site of origin by transporting agents such as water, wind and gravity to a lower position in the catchment, either above or below sea level.
Sedimentation	means the deposition of sediment, usually in locations such as a channel, along a fence, in an area of low slope or a sediment trap, dam or water body.
Soil Erosion	means the wearing away of the soil surface material by wind, water or gravitational effects. Natural rates of erosion are accelerated by some human activities.
Soil and Water Management Plan	describes the planned measures to be undertaken at an activity site which will mitigate soil transport and control pollution by sediment or nutrient to downslope lands and receiving waters.
Subdivision	"Subdivision", "subdivide", and similar expressions refer to dividing land into parts.
Vegetation	means native and exotic trees, shrubs, understorey and grasses found within the Council area.
Waters	means any river, stream, lake, lagoon, swamp, wetlands, unconfined surface water, natural or artificial watercourse, dam or tidal waters (including the sea), or part thereof, and includes water stored in water mains, water pipes and water channels, and any underground or artesian water, or any part thereof.

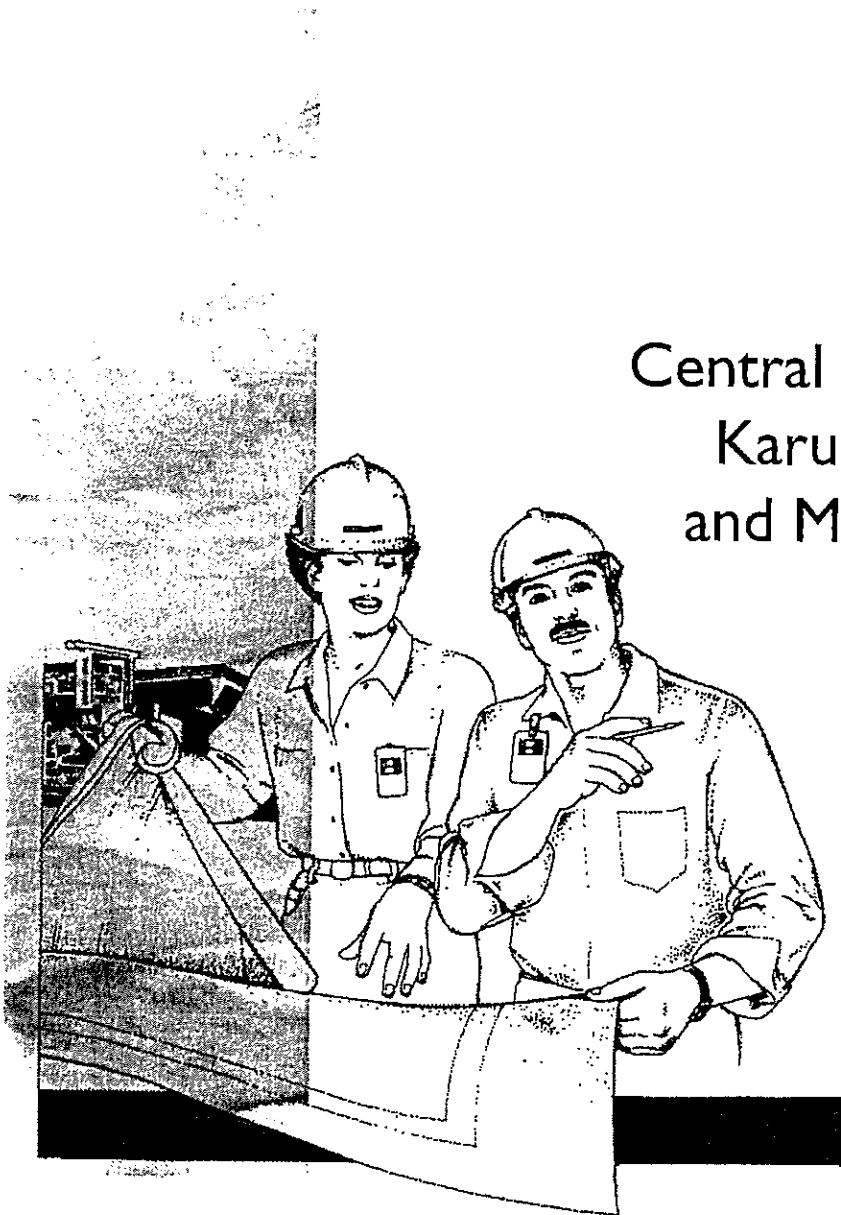
Erosion and Sediment Control

Additional Clauses

for Councils and Other Authorities

Document 2

Central Coast, Hunter,
Karuah Great Lakes
and Manning Regions
of NSW



Contents

INTRODUCTION

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Introduction

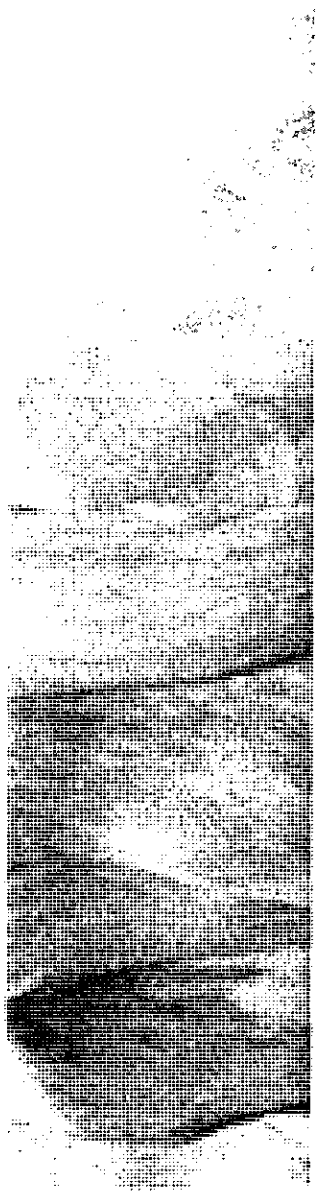
This document is intended to follow adoption of the basic or minimum Regional Policy and Code of Practice - Erosion and Sediment Control, as contained in Document 1.

Code of Practice clauses recommended to Councils are optional additions to the Regional Policy and Code of Practice - Erosion and Sediment Control. They have been proposed for determination by individual Councils as not all members of the Central Coast, Hunter, Karuah-Great Lakes and Manning Local Government community are at the same stage of awareness and enforcement on this issue.

The Lower Hunter and Central Coast Regional Environmental Management Strategy subcommittee intend that individual Local Government Areas consider the additional Codes of Practice for Erosion and Sediment Control clauses. They would then adopt, amend or reject all or part of the specific activity code clause as proposed. A checklist table (see page 17) would then be detailed by Council and implemented together with the Regional Policy and Code of Practice - Erosion and Sediment Control.

The proposed optional Code of Practice - Erosion and Sediment Control has been subdivided into four categories.

- Councils and other public authorities / utilities
- Land subdivision activity
- Building construction activity
- Non-urban areas



A0 Community Awareness and Promotion of Erosion and Sediment Control Best Practice

Councils Category

- (a) Council will set up a mechanism to:
- implement, monitor and audit compliance
 - to improve process efficiency
 - to assist the industry develop best practice in erosion and sediment control
 - and report to the community on implementation.
- (b) Council shall set up a mechanism to survey, map and rank all sub-catchments within current and future urban zones (down to third order stream level). This data will be used to determine priority hazard areas for potential erosion and sedimentation. Council will determine the period to implement this assessment.

A1 Planning and Design of Works

Councils and Public Authorities Categories

(i) Erosion and Sediment Control Principles

Principles of erosion and sediment control applied in all planning and design activity shall comply with the Regional Policy and Code of Practice - Erosion and Sediment Control. Where appropriate they will incorporate the following:-

- (a) **Erosion and sediment control measures, where required, will be integral components** of all job design and costing.
- (b) **No work shall be carried out on public or private land unless accompanied by measures** which minimise soil erosion and prevent sediment escaping from the site at levels greater than those allowed by the EPA.
- (c) **Vegetation shall not be removed before approval to commence works** on any stage of the development. The only exceptions are for survey purposes or other activity allowable under Council Tree Preservation Order or Policy.
- (d) **Disturbance to vegetation and land at a works site will be minimised.** Clearing and earthworks extent and timing shall be matched to development stage and conform to an approved schedule of works.
- (e) **Vegetation removed at an approved activity site shall be reused** on-site either as a log or chip form, with saleable product salvaged and debris disposed of at an approved landfill site.
- (f) **Any native vegetation** or tree of significance that is outside the approved works area but within the development site boundary **must**

be identified on the approved plan and protected by barrier fencing or a strategy that achieves the same end.

- (g) **Run-on water** from land surrounding the activity site shall be intercepted and diverted to a stable waterway or disposal area, where appropriate and legal.
- (h) **Erosion control practices** are to be implemented across the site. Sediment trapping measures are to be located at least at all points where site stormwater can enter constructed stormwater inlet pipes or leave the activity or development site.
- (i) **Topsoil shall be stockpiled in mounds less than 1 metre high (where revegetation by the contained seed source is proposed) and protected with sediment control measures.** It will generally be respread to a depth of 100 mm on all exposed areas, after final land shaping. Stockpiles will not be located on a nature strip, footpath, roadway, kerb, access or within a drainage line without Council permission.
- (j) **Stockpiled material that is scheduled to remain undisturbed for more than one month will be surface stabilised** within 14 days of placement or within an approved period. Surplus topsoil can be removed from site. Excess subsoil or spoil may be retained on-site in approved areas, topsoiled and stabilised or removed from the site.
- (k) **Access to and within the construction site shall be controlled.** Where practical, vehicle and plant entry/exit to the site will be restricted to a single, well defined all weather access. Vehicular operation within the construction site must be limited to approved areas by placement of operational boundary markers.
- (l) **Trenches shall be backfilled,** compacted, capped with topsoil and turfed or sown with approved seed within 24 hours of inspection. The proponent is encouraged to arrange the common placement of utilities for minimum open trench time.
- (m) **All disturbed areas shall be progressively stabilised** so that no area remains an erosion hazard for more than 14 days (or another approved period) after earthworks cease.

(ii) Reserves

Council shall prepare and implement an approved management plan on public reserves it administers. The plans will incorporate erosion and sediment control measures and proposals for undertaking clearing for the purpose of bushfire protection, removal of noxious weeds or known vermin harbour.

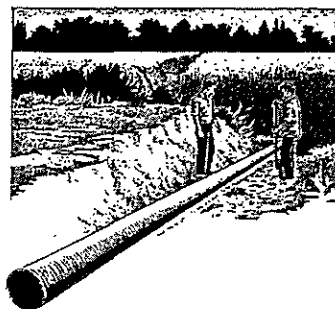
Building Construction Category

(i) Site Layout/ Erosion and Sediment Control Plans

- (a) All building applications, where the project involves site disturbance, excavation or filling must be accompanied by details of the proposed method of erosion and sediment control on the building site. Industrial and

commercial building allotments require the submission of a more detailed Erosion and Sediment Control Plan with associated schedule of works implementation.

- (b) The consent authority may require an Erosion and Sediment Control Plan with associated schedule of works implementation and/or compliance with this Code of Practice during erection of a building for which development consent is not required.



Non-Urban Areas Category

- (a) This Code of Practice applies to agricultural activities within the Council area and it requires that:
- All agricultural activities are to be undertaken in a manner that minimises the potential for erosion and sedimentation to occur.
 - All agricultural activities must conform to the standards of erosion and sediment control recommended by the Department of Land and Water Conservation.
- (b) This section of the Code of Practice applies to forestry and native vegetation management activities undertaken within Council area and it deems that:
- All forestry and native vegetation activities shall conform to the standards of erosion and sediment control as recommended by the Department of Land and Water Conservation
 - The exclusions and exemptions that apply within the Native Vegetation Conservation Act (1997) or on State Forest, national forest, timber reserve or flora reserve within the meaning of the Forestry Act (1916), are excluded from the requirements of the Code. National Parks, historic sites, nature reserve or game park reserves within the meaning of the National Parks and Wildlife Act (1974) are also excluded.
- (c) On large building allotments or in non-urban areas, Council will determine the appropriate soil and water management plan requirements in consultation with the proponent. Where the work site is located near sensitive sites or areas such as a watercourse, drainage line or bush land, the proponent shall supply details of erosion and sediment control measures to be undertaken for Council approval.

A2 Training

Councils and Public Authorities Categories

Council and Authority employees will be adequately trained to allow adoption of workplace practices that minimise erosion and prevent sediment from the activity sites entering adjoining land and "waters".

Land Subdivision and Building Construction Categories

The proponent will train employees adequately to allow adoption of workplace practices that minimise erosion and prevent sediment from activity sites entering adjoining land and "waters". The proponent should encourage site sub-contractors to be aware of and implement the Policy and Code of Practice for Erosion and Sediment Control enforced within the Local Government Area.

A3 Vegetation Management

Councils, Public Authorities and Land Subdivision Categories

- (a) There shall be no soil disturbance or exposure, including the removal of vegetation, before the approval of an Erosion and Sediment Control Plan unless exempt under Council's Tree Preservation / Management Policy or Order. Within urban areas removal of trees and shrubs less than 3 metres in height and slashing of ground covers to a minimum height of 150 mm can be undertaken without specific approval of Council for survey or geotechnical investigation purposes. In some villages and rural areas clearing of native vegetation will be subject to State regulation as well as the local tree preservation/management policy.
- (b) Unauthorised damage to trees of significance, caused by clearing operations shall be repaired under the guidance of a qualified tree surgeon, to minimise subsequent vegetation loss, at the proponent's cost. This applies when:
- roots exceeding 50 mm in diameter and within 3 metres of the trunk of the tree have been cut, ripped, scraped or broken
 - limbs greater than 50 mm in diameter and within 5 metres of the trunk of the tree have been cut, ripped, scraped or broken
 - bark with a total area over 200 square centimetres has been removed from the trunk of the tree in one or more places.
- (c) Approved engineering plans for a land subdivision shall allow a 5 metre maximum vegetation clearing distance from the edge of any essential construction activity, but a 3 metre operating distance is preferred by Council. Where other legal requirements occur the set back distance may be different from that stated in this Code.
- (d) Multi-staged subdivisions shall only have sufficient area approved at each stage to allow progressive development to be undertaken.
- (e) Approval of land clearing undertaken on private or public lands for an activity or development will be subject to the installation of adequate runoff, erosion and sediment control measures.
- (f) Any nominated trees cleared will be replaced according to conditions contained in Council Tree Preservation/Management Policy or Order.

A4 Soil Erosion and Sediment Control

Councils, Public Authorities and Land Subdivision Categories

- (a) A sediment fence and/or similar trapping measure will be installed within the property boundary and downslope of any cleared and/or disturbed area, to prevent sediment and other debris leaving the site.
- (b) Erosion and sediment control practices are to be implemented across the site, while sediment trapping measures are to be located at all points where stormwater can enter constructed stormwater inlet pipes or leave the activity site. Design values for erosion, sediment control and stormwater works will be at an Annual Recurrence Interval (ARI) as set out in the following table.

Design Average Recurrence Intervals For Erosion, Sediment, and Runoff Control Measures in Urban Areas

Control Measure	Estimated Design Life of Measure	
	0 - 12 Months Design Value	12 - 48 Months ARI (Years)
Diversion Bank	1 - 10	10 - 20
Level Spreader Sill	1 - 10	10 - 50
Waterway	1 - 10	10 - 50
Sediment Basin Primary outlet	1 - 5	5 - 10
Sediment Basin Emergency outlet	10 - 20	20 - 100
Sediment Trap	1 - 5	5 - 20
Outlet Protection	1 - 20	20 - 100
Grade Stabilising Structure	1 - 20	20 - 100
Detention Basin Primary Outlet	1 - 5	5 - 10
Detention Basin Secondary Outlet	10 - 20	20 - 100

Source: Urban Erosion and sediment Control Handbook (DLWC 1992)

A5 Construction Site Management

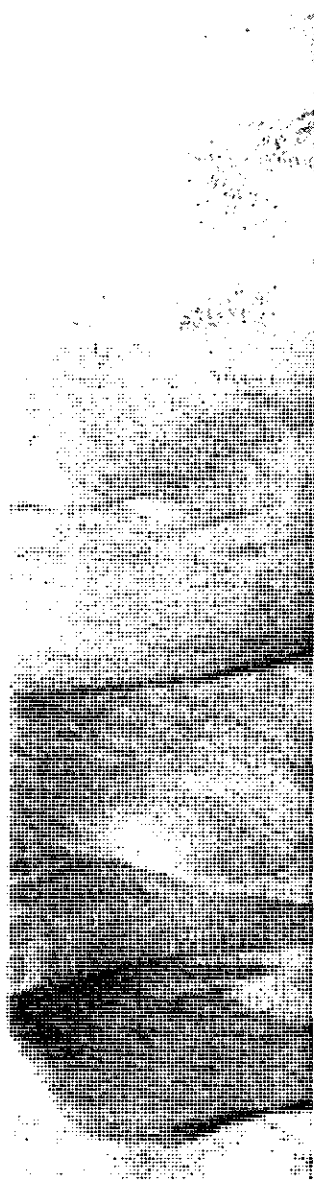
Councils, Public Authorities and Land Subdivision Categories

(i) Roads and Access Tracks

- (a) Priority for road shoulder stabilisation shall be determined by Council on the basis of a completed erosion hazard survey. Ranking will be reviewed annually.
- (b) Road shoulders and table drains beside sealed roads:
 - Where slope gradients of table drains are generally less than 5% and construction of kerb and guttering is impracticable, drainage will be by progressive installation of grassed table drains shaped to facilitate maintenance mowing. Road shoulders and table drains shall be compacted, ideally topsoiled, and grassed during reshaping so as to direct the surface runoff, without erosion, into the drainage system.
 - If slope gradients of table drains are generally greater than 5%, and construction of kerb and guttering is impracticable, road shoulders and table drains will be drained by progressive implementation of appropriate erosion control measures and vegetated where possible.
- (d) Maintenance mowing of road shoulders, table drains, batters and other surfaces must leave a stable vegetative cover no shorter than 75 mm.
- (e) Routine grading beside sealed road shoulders shall be limited to essential pavement edge maintenance. Where appropriate, a program of grassed road edge maintenance mowing, or the application of equivalent stabilising measures shall be implemented.
- (f) Maintenance of unsealed roads and shoulders shall be carried out so as to include sediment trapping sumps/devices within the length of the table drain or in association with minor culvert structures.
- (g) Where possible, a single access (3 to 5 metres width per lane) shall be provided to and within the construction site. After formation, the entry/exit surfaces shall be covered as needed by a layer of geotextile and 200 mm deep aggregate of greater than 40mm diameter or other approved materials. This will protect temporary access from surface erosion during building activity.

(ii) Cut and Fill Batter Management

- (a) Road construction, or access track and infrastructure construction shall disturb the minimum amount of land needed to implement the activity.
- (b) A diversion and/or catch drain shall be installed to direct the water to a stable outlet if the catchment area above any batter exceeds 2000 square metres, or the slope gradient exceeds 20% and the flow of runoff is sufficient to scour batters.



- (c) Fill batters must be sited to avoid encasing established trees where possible.
- (d) All cut or filled batters shall be effectively stabilised or revegetated as soon as possible after formation.

(iii) Drainage

- (a) Where proposed activities are predicted to increase stormwater runoff volume and rate, the proponent will provide appropriate drainage. This will include energy dissipation and/or detention measures to prevent channel erosion and minimise adverse ecological impacts or flooding within the site or the catchment.
- (b) The ARI 1 in 5 year storm event must be used as the minimum design criteria for minor drainage conduits for all urban runoff works. Flooding hazard zones shall exist where the stream has a calculated annual exceedence probability greater than 1%.
- (c) Run-on water from land surrounding the activity site is to be intercepted and guided from the area to be disturbed to a stable waterway or disposal area, where appropriate and legal.
- (d) Erosion and sediment control practices are to be implemented across the site, while sediment trapping measures are to be located at least at all points where stormwater can enter constructed stormwater inlet pipes or leave the activity or development site.

(iv) Drain Maintenance

- (a) Channel maintenance shall be carried out, as required, to restore water carrying capacity. Clearing of excess vegetation to maintain channel capacity shall, where possible use selective trimming to leave a short, dense, living ground cover that will continue to stabilise the channel banks/bed and provide a sediment or nutrient trapping measure.
- (b) Council's preferred option during drainage system upgrades or restoration is to establish the channel as a grassed open drain instead of closed pipe or concrete lined channel if possible.
- (c) Where easement width and soil conditions permit, Council shall at least follow the construction and maintenance guidelines contained in the NSW Department of Planning's publication "Better Drainage" (1993).
- (d) Removal of dead trees from channel banks shall be by cutting the trunk close to the ground and leaving the root mass undisturbed.
- (e) Excess or undesirable vegetation in drainage lines will be poisoned only if other methods of control are impractical and after obtaining appropriate permits.

(v) **Dredging**

Dredging or excavation of a major channel to maintain water carrying capacity will be carried out after approval under appropriate legislation. The work shall be carried out with due regard for problems associated with contaminated sediment and / or possible acid sulfate soil material and without unnecessary damage to stabilising riparian vegetation.

(vi) **Quarries**

Quarries shall be operated and maintained so as to prevent sediment moving off-site onto adjoining land or "water". Existing quarries must be progressively rehabilitated to minimise future soil erosion hazard.

Building Construction Category

(i) **Roads and Access Tracks**

- (a) Access track and infrastructure construction shall disturb the minimum amount of land necessary.
- (b) Where possible, a single access (3 to 5 metres width per lane) shall be provided to and within the construction site. After formation, the entry/exit surfaces shall be covered as needed by a layer of geotextile and 200 mm deep aggregate of greater than 40mm diameter or other approved materials to provide temporary access protection from surface erosion during building activity.
- (c) Aggregate and accumulated or deposited construction site sediment on sealed roads must be thoroughly swept and removed to prevent this material entering the drainage system.

(ii) **Turf Filter Strips**

- (a) A turf filter strip shall be installed and maintained along the road nature strip/footpath area adjacent to street kerbs (or along the downslope boundary). It is to act as a final filter for the runoff leaving the property. Any exposed soil on the footpath and allotment shall be seeded or otherwise revegetated to limit runoff water and sediment.
- (b) In areas where the property is adjacent to bushland, care is needed to prevent the spread of turf grasses or hydromulch material beyond the rehabilitated area. Use of tree mulch or sterile seed/grass stock or native seed/seedling may be preferable to pasture species or couch turf in such locations.

(iii) **Sediment Control**

- (a) A sediment fence shall be installed to provide a temporary barrier or filter geotextile structure that captures sediment from sheet flow runoff. It will be located within and/or along the downslope boundary of any construction site or upstream of a turf filter strip or native vegetation. Generally sediment fencing is restricted to small

catchment areas with a slope length of less than 60 metres, and away from concentrated flow paths.

- (b) Sediment traps will be installed to provide a temporary sediment control measure to intercept and retain sediment laden runoff in an excavation and/or an embankment located at all points where stormwater can leave a construction site or enter a drainage system. On sites with highly dispersible or erodible soil Council requires runoff within sediment traps to be filtered or flocculated before the water is released to the environment.

(iii) Roof Water Disposal

- (a) All roof guttering and downpipes shall be installed and connected to Council's drainage system or other approved drainage system immediately after roof material fixing. If this connection cannot be made immediately, then on-site sediment control devices must be installed to receive and mitigate roof water runoff.
- (b) Where no Council drainage system is provided, the roof stormwater shall be discharged away from the building site onto a stable vegetated area within the property with sediment control devices installed.

A6 Services and Utilities Management

Councils, Public Authorities and Land Subdivision Categories

- (a) The proponent is encouraged to use common placement of utilities with minimum trench open time.
- (b) If a trench requires drainage by pumping out during construction, the water must be contained for filtration or flocculation, prior to release to receiving waters.
- (c) Trenches shall be backfilled, compacted, capped with topsoil and turfed or sown with approved seed within 24 hours of service installation.

A7 Rehabilitation

Councils, Public Authority and Land Subdivision Categories

- (a) All disturbed areas shall be progressively stabilised and/or revegetated across the site. No completed area is to remain exposed to erosion for more than 14 days or another approved period. Installed temporary sedimentation control measures are to be maintained until the area stabilisation is complete and then decommissioned.
- (b) If the sowing of seed is used as a primary rehabilitation measure on disturbed ground, additional erosion and sediment control measures must be carried out. These can include turf stripping or sediment fences. They will be maintained until an effective 70 % vegetative ground cover has established over the completed area.
- (c) The removal or management of vegetation within Council area shall be consistent with the approved Tree Preservation Order or Policy. This may contain conditions that override clauses within this Code of Practice - Erosion and Sediment Control.

A8 Topsoil and Stockpile Management

Councils, Public Authorities and Land Subdivision Categories

- (a) Topsoil shall be stockpiled in mounds less than 1 metre high (where revegetation by the contained seed source is proposed). It will be protected with sediment control measures and respread on all exposed areas to a depth of at least 100 mm on slopes flatter than 1:4. The minimum depth will be 50 mm on slopes up to 1:2, after final land shaping.
- (b) Stockpiled material that is scheduled to remain undisturbed for more than one month shall be surface stabilised within 14 days of placement or within an approved period.
- (c) Stockpiles of erodible building materials or soils will not be located on a nature strip, footpath, roadway, kerb, access, or Public Reserve and within 2 metres of a watercourse, without Council approval.
- (d) The land adjoining the stockpile shall be protected from degradation by the implementation of erosion and sediment control measures such as a diversion drain, sediment fence, geotextile or other approved devices.

A9 Erosion and Sediment Control Maintenance

Councils, Authorities and Land Subdivision Categories

- (a) All erosion and sediment control measures, including permanent sediment traps, shall be maintained as per the schedule of works within the approved Erosion and Sediment Control Plan (or as required). At least 70% of their design capacity is to be operational until they are decommissioned.
- (b) Decommissioning of erosion and sediment control measures must comply with the schedule of works within the approved Erosion and Sediment Control Plan. Material held in sediment control measures on decommissioning shall be either stabilised in situ or removed to an approved disposal site. All structural materials used to construct temporary erosion and sediment control measures are to be dismantled and removed from the site on decommissioning.
- (c) All site debris and unused construction material must be removed from the site or protected from erosion before the site is vacated.

A10 Environmental Performance Bond

Councils, Public Authorities and Land Subdivision Categories

Before works are implemented Council may require the payment of a security bond by administrative divisions or proponents to ensure effective erosion and sediment control measures and rehabilitation. Activities associated with adjoining sensitive environments, extractive industry or substantial development may attract this environmental performance bond charge.

- (a) The bond will be a suggested minimum of \$3,000 per hectare of disturbed land, at a 30 June 1997 dollar value. It will change in line with Consumer Price Index at 1st July each year.
- (b) When the project is complete the bond will be released in full if all the development consent conditions have been implemented and maintained and site rehabilitation is complete.
- (c) Council has the right to undertake any erosion and sediment control work, on or off site, deemed necessary for the benefit of the community, without notice to the proponent. The cost of this work may be recovered from the lodged security bond or by further legal action.



APPENDIX A — Glossary of Terms

The following glossary of terms is proposed for use by Council in relation to this Policy and Code of Practice - Erosion and Sediment Control.

Activity	<p>in relation to this policy and Code means</p> <ul style="list-style-type: none">a) the erection of a building;b) the carrying out of work in, on, over or under land;c) the use of land or of a building or work; andd) the subdivision of land, and includes any act, matter or thing for which provision may be made under Section 26 of the Environmental Planning and Assessment (EP&A) Act and which is prescribed for the purpose of this definition, but does not include:<ul style="list-style-type: none">• any act, matter or thing for which development consent under Part IV of the EP&A Act is required or has been obtained;• or any act, matter or thing which is prohibited under any environmental planning instrument.
Approval	<p>means a licence or permission or any authorisation.</p>
Approving Authority	<p>means a Council, authority or determining body.</p>
Authority	<p>in relation to a development application, means:</p> <ul style="list-style-type: none">a) the Council having the function to determine the application; orb) the Minister or public authority or the Director where an environmental planning instrument specifies as having the function to determine the application.
Building Works	<p>includes building / structure or part there of.</p>
Consent	<p>means a licence or permission or any authorisation under Part V of the EP&A Act.</p>
Construction Site	<p>is that portion of a site disturbed by the development and/or building and includes the areas where building materials are placed and access traversed by vehicles.</p>
Cultivation	<p>is the mechanical preparation of the soil required for the growing of crops/ pasture.</p>
Development	<p>in relation to land, means; the erection of a building on that land; the carrying out of a work in, on, over or under that land; the use of that land or of a building or work on that land; the subdivision of that land.</p>
Dispersible Soil	<p>is structurally unstable. In water it will break down into its constituent particles (clay, silt and sand). Highly dispersible soils are highly erodible and are associated with high exchangeable sodium and low soluble salt concentrations. In the absence of better defining criteria, soils that contain >10 % dispersible material can disperse and need flocculation. Soil dispersability can be determined by laboratory tests.</p>
Earth Bank and Channel	<p>A bank is a ridge or embankment of compacted earth. A channel is an excavated earth drainage ditch or path used to intercept and direct runoff to a desired location.</p>

Erosion and Sediment Control Plan (ESCP)	is a plan showing how potential erosion and sedimentation on a given site resulting from approved building works, development or activity will be minimised or controlled.
Environmentally Sensitive Land	is land that is steeper than 18 degrees of slope; liable to degradation due to erosion, sedimentation, salinity/acidity, inundation by sand/soil or water, invasion by exotic vegetation; or native vegetation and wetlands
Landscape Plan	is a plan showing the location, type and quantity of vegetation and structural elements to be placed on the site to gain visual amenity and screen sections of the site from public view or use.
Level Spreader	A level spreader is an excavated outlet constructed at zero grade and level across the outlet edge.
Perimeter Banks and Channels	are earthen structures that collect and divert runoff and have a level spreader (level sill) outlet to prevent erosion at the discharge point.
Receiving Waters	means either <ul style="list-style-type: none"> a) natural water bodies, including rivers, streams (perennial or intermittent), flowing in natural channels with natural beds or in artificially modified channels, lakes, lagoons or wetlands, either naturally formed or artificially modified, or tidal waters, including bays, estuaries or inlets, or b) constructed water bodies including waterways, channels, canals, dams, ponds, or wetlands, lakes, bays or inlets no matter whether they are permanently or intermittently inundated with water.
Sediment	means both mineral or organic material that is being, or has been moved from its site of origin by transporting agents such as water, wind and gravity to a lower position in the catchment, either above or below sea level.
Sedimentation	means the deposition of sediment, usually in locations such as a channel, along a fence, in an area of low slope or a sediment trap, dam or water body.
Soil Erosion	means the wearing away of the soil surface material by wind, water or gravitational effects. Natural rates of erosion are accelerated by some human activities.
Soil and Water Management Plan	describes the planned measures to be undertaken at an activity site which will mitigate soil transport and control pollution by sediment or nutrient to downslope lands and receiving waters.
Subdivision	"Subdivision", "subdivide", and similar expressions refer to dividing land into parts.
Vegetation	means native and exotic trees, shrubs, understorey and grasses found within Council area.
Waters	means any river, stream, lake, lagoon, swamp, wetlands, unconfined surface water, natural or artificial watercourse, dam or tidal waters (including the sea), or part thereof, and includes water stored in water mains, water pipes and water channels, and any underground or artesian water, or any part thereof.