POLICY NAME: **EROSION & SEDIMENTATION CONTROL**

POLICY REF: **E01**

MEETING ADOPTED: **23 July 1992**
Resolution No. 13280

POLICY HISTORY:

TABLE OF CONTENTS

OBJECTIVE

Urban development is a fact of life. It is essential to sustaining future population. In Ballina Shire an expected population of 41,100 is envisaged by the year 2001. (Ballina Shire Council, 1991).

Notwithstanding this basic need, community and political pressures are such that development is expected to be carried out in an environmentally acceptable manner. Consequently, developers and contractors are more accountable for their activities and their impact on the environment.

BACKGROUND

The process of urbanization leads to many changes in our natural environment, with erosion and sedimentation being amongst the most dramatic and costly to the community. Erosion and sedimentation cause both environmental and economic impacts. Both are important, but it is often only an economic impact that spurs a local or state instrumentality to take action. Environmental impacts are often more insidious – they tend to build slowly and not produce dramatic results for many years when it may be too late to save a degraded ecosystem.

Sediment from construction sites can block stormwater drains and cause siltation of streams and lakes. It causes turbidity in receiving waters, reduces their recreational value and damages aquatic life. Erosion control strategies and implementation of soil and water management programs for the entire urban development process is paramount to ensure the immediate (on site) and surrounding (off site) natural ecosystems are not degraded.

In more recent times there has been a pre-occupation to effect erosion control measures during the initial subdivision phase. The potential for significant sediment transport loads is not limited to the road construction and installation of urban stormwater works. The urban development process also encompasses, the provision of essential services such as gas, telephone, water, sewer, electricity and the house and building phases. It is equally as important to sustain erosion and sediment control measures during these phases to ensure sediment is not transported into the formal stormwater conduits.

This report proposes a new and integrated approach to the development and adoption of an effective strategy for erosion and sediment control through the entire urban development process. Given the influences of high intensive rainfall, clayey soil and variable slope the land of North Coast NSW is the area for the greatest potential of erosion in the state (Rob Towler, Soil Conservation Service, 1992).

POLICY

According to Rob Towler, urban development has a significant effect on erosion levels, this can be illustrated through comparison of land-use, ie;

Table 1: Erosion Rate of Land-Use, North Coast NSW

1.	Undisturbed land	-	1 tonne per hectare per year
2.	Cultivated land	-	10 tonne per hectare per year
3.	Urban building block	-	30 tonne per hectare per year
4.	Subdivision (including road building)	-	400 tonne per hectare per year.

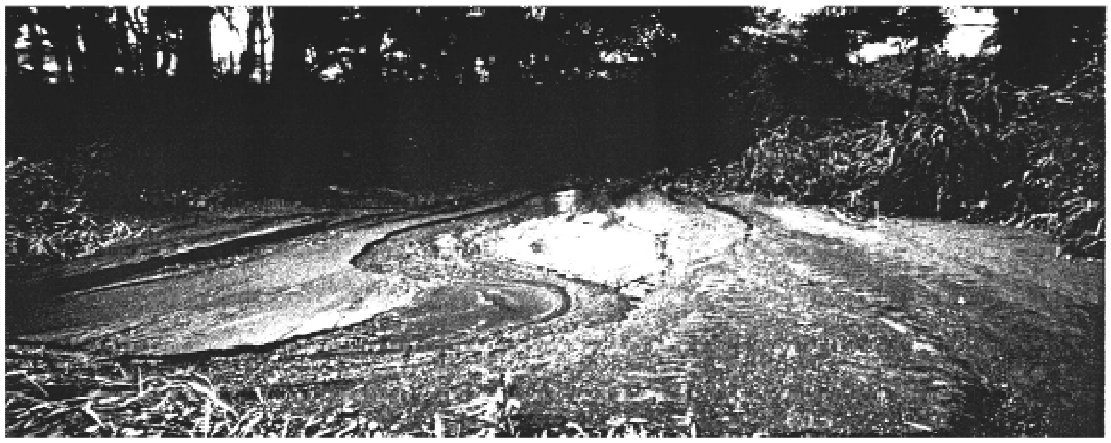
The proposed strategy will provide for an education process combined with a phased introduction of appropriate conditions depending on specific site characteristics. (It is important to note that in cases where slopes are minimum and soil conditions are resistant to erosion that only minimal sediment and erosion control conditions shall apply).

It is estimated that the application of 'active' sediment and erosion control measures will be limited to approximately 10 to 15% of the total number of building applications. 'Active' controls include the provision of sediment control fences, sandbags, haybales, etc.

Together with those primary objectives, a monitoring program of stormwater conduits and streams will allow Council's Environmental Health Section to determine the effectiveness of changes to traditional urban development practices on the biological and chemical nature of the receiving waters.

1. The Present Situation

Presently, in terms of the house and building stages of the urban development process there are no sanctioned controls in place to prevent erosion and to reduce sediment pollution. Photographs taken in February 1992 in a new subdivision at Wollongbar show the effect of uncontrolled sediment runoff. *(See Photograph A).*



Photograph A – Uncontrolled sediment runoff from new subdivision Wollongbar, February 1992

Amendments were made to Council's Subdivision Code 1992 to include provision for erosion and sediment control strategies in an attempt to counter such problems.

The second phase of the land development process usually involves the laying of pipes and conduits for essential services, such as water, sewer, electricity and telephone. Each authority digs its own trench (with the exception of common trenching for water and telephone) in the most vulnerable location viz the footpath corridor which is immediately adjacent to the road pavement and kerb-guttering inlet drainage pits. Stockpiled or disturbed soil in this position is particularly vulnerable to erosion and discharge into the piped underground stormwater system.

The result of this lack of an integrated approach to sediment and erosion control is obvious, with roadways and streams of the classic 'red-dirt' illustrating this. *(See Photograph B)*.

Photograph B – Sediment runoff from urban development completely engulfs watercourse, Wollongbar February 1992

2. Council's Role

In terms of Council's role in erosion and sediment control, (especially that of the Health and Building Department) effective protection of streams, lakes etc, under the Clean Waters Act, 1970 and the need to satisfy the demands of ongoing urban development must be balanced. It would seem reasonable to impose conditions on building development that is likely to cause erosion and subsequent pollution of waterways but at the same time not hindering the building process.

The proposed erosion and control policy will meet Council's obligations as the Local Authority (especially under the Environmental Penalties and Offences Act, 1990) to ensure protection of the environment. It is important to reinforce that any sediment and erosion control conditions will be assessed by Council's Building Surveyors on a site specific basis.

Council's role as an educator, as well as an administrator of policy and regulations will be utilised to firstly, increase awareness of environmental pollution, secondly, to help change traditional work practices, and thirdly to help negate any unnecessary conflict to the proposed policy. A proposed 'period of grace' prior to the imposition of building conditions will allow time for notification of appropriate tradesmen by mail of the new policy. A seminar covering aspects of onsite drainage is also proposed to present tradesmen with the facts regarding effective erosion and sediment control. (It may be beneficial to arrange in-house seminars with the larger building groups ie Morgan, Jennings and Craftsman Homes).

It is also proposed that Council use a site on the new Angels Beach subdivision or other site as a model to illustrate some erosion and sediment control measures that can be utilised. This would serve the purpose of increased exposure for council's Policy, as an education tool for tradesman and as a pilot study to highlight any flaws in the placement, installation and design of these temporary systems.

It is intended that sediment and erosion control conditions would come into play as of 1 January 1993 for all new building applications, following on from correspondence and pamphlet presentation combined with a seminar(s).

It is also proposed that Council make contact with Northern Rivers Electricity and Telecom to arrange a meeting to discuss their "attitudes" to sediment and erosion control in terms of their current and future works practices.

A funding allocation of $700 will be required to help cover costs for the promotion, installation and maintenance of erosion and sediment control initiatives, including:

1. Promotional material
2. Seminars
3. Erosion and sediment control materials for proposed model site

3. Implementation Process

The implementation process for the proposed "Erosion and Sediment Control Policy" as follows:

1.

a) Send letters and pamphlets* to tradesmen, (ie builders, plumbers, earthmoving, landscapers etc) (Note: a current list of tradesmen operating in Ballina Shire and environs has been established and is available on Council's database end of July 1992).

b) Establish Model Erosion and Sediment Measures (Angels Beach Subdivision or other site).

2. Arrange for Drainage Seminars for mid October to November 1992.

3. Introduction of Erosion and Sediment Control Conditions January 1 1993.

*Copy of proposed letter and pamphlet attached.

4. References

1. Ballina Shire Council, 1992, "Facts & Figures", March 1992.

2. Rob Towler, Soil Conservation Service 1992, "Impacts of Subdivision and Building on Soil Conservation", Environmental Health Conference, Coffs Harbour, 1992.

3. City of Wollongong, "Information Sheet" –Soil Erosion on Residential Building Sites".

4. Goldrick DA, District Soil Conservationist, Wollongong, "Urban Development – an Integrated Approach for Effective Erosion & Sediment Control".

5. Attachment 1

Dear Sir

Re: Erosion & Sediment Control on Building Sites

It is extremely important that you read this letter as it will effect and have an influence on your future business operations.

As part of Council's pro-active measures to protect the environment a coordinated approach has been devised in an attempt to reduce the amount of erosion and sediment runoff from building sites. Council's Health and Building Department have decided upon a number of practical and economical measures to meet this end.

In the future building applications will be assessed on the perceived risk of erosion during development. If it is deemed appropriate the application will be conditioned to ensure adequate erosion control measures are installed and maintained during the building process. (Information sheet attached).

An amnesty period will apply until 1 January 1993 when the new erosion and sediment control conditions will come into force. In the interim Council officers will be conducting seminars to explain the new guidelines and to answer any questions you may have on this matter. You will be notified of the dates, times and location of these seminars accordingly.

If you have any queries with regard to this matter please do not hesitate to call Council's Health and Building Department on 86 1261.

Yours faithfully

G J Faulks
SHIRE CLERK

6. Attachment 2

7. Information Sheet No. 1

8. Soil Erosion on Building Sites

Soil erosion occurs wherever water flows across bare soil.

Topsoil supports the growth of plants on the land but in waterways it is a serious pollutant.

Soil washed into drains damages stormwater pipes, blocks the flow during heavy rain and adds to the growing deposits of mud in our creeks and lakes.

We need new suburbs and houses but we do not need the pollution often caused by construction works. Even a single building block can lose up to four (4) truck loads of soil during one storm.

Everyone involved in land development can help reduce this pollution.

Council has developed a strategy to reduce erosion and sediment runoff throughout the urban development process, from subdivision through to the single building block. Your assistance in dealing with this issue is earnestly requested.

9. Site Assessment

When an application for building approval is submitted to Council, each block will be assessed for its potential to erode.

- slope
- soil type
- surface rock
- proximity to watercourses and drainage lines
- extent of site disturbance

to determine what erosion and sediment control measures may be required.

10. Erosion Controls

1. Before you start work:
   - Design and site building to minimise cut and fill
   - Retain a buffer strip of vegetation along creeks and the front of the block near the gutter.

2. Driveways and access during construction:
   - The surface of the driveway may need temporary protection from surface erosion.
   - The edges of driveways can be eroded by concentrated runoff and may need extra protection.
   - Restrict vehicles on site during muddy conditions.

DO NOT PLACE ANY MATERIAL IN THE GUTTER TO PROVIDE ACCESS TO THE BLOCK.

DRIVEWAYS ARE TO BE PROTECTED FROM EROSION TO PREVENT MATERIAL FROM BEING WASHED INTO THE GUTTERS AND DRAINS.

3. <u>Stockpiles</u>

Stockpiles of topsoil, sand, gravel etc are valuable. Don't let your property be washed down the drain.

Locate stockpiles so that the material:

- does not spill into the gutter or roadway
- is not in a drainage line or watercourse
- cannot be washed into these areas

Any material accidentally spilled onto he road or gutter must be removed immediately.

Your soil belongs on your land.

protection of your precious topsoil will ensure a healthy garden and help to protect the environment.

11. Sediment Controls

Water flowing off a construction site carries soil and other pollutants.

- A temporary sediment fence will act as a filter to catch the soil particles and allow the clean water to flow on. Fences are usually constructed from geotextile fabric supported by steel pickets.

- Divert larger flows into a sediment trap designed to slow the movement of water and allow the particles of soil to settle. A trap of stone, gravel, gabions or sandbags should be placed around stormwater inlets.

Topsoil is precious. Keep your soil on your land.

Further information is available from Council's Health and Building Department on Ph. 86 1261.

12. Attachment 3

13. Building Approval Conditions

14. Explanatory Notes – Soil Erosion Controls

1. The following drawings show a range of building sites and the preferred location of sediment fences, hay bales and sandbags. If your house site resembles any one of the attached drawings, then place your erosion protection measures accordingly or seek advice from Council's Health and Building Surveyors.

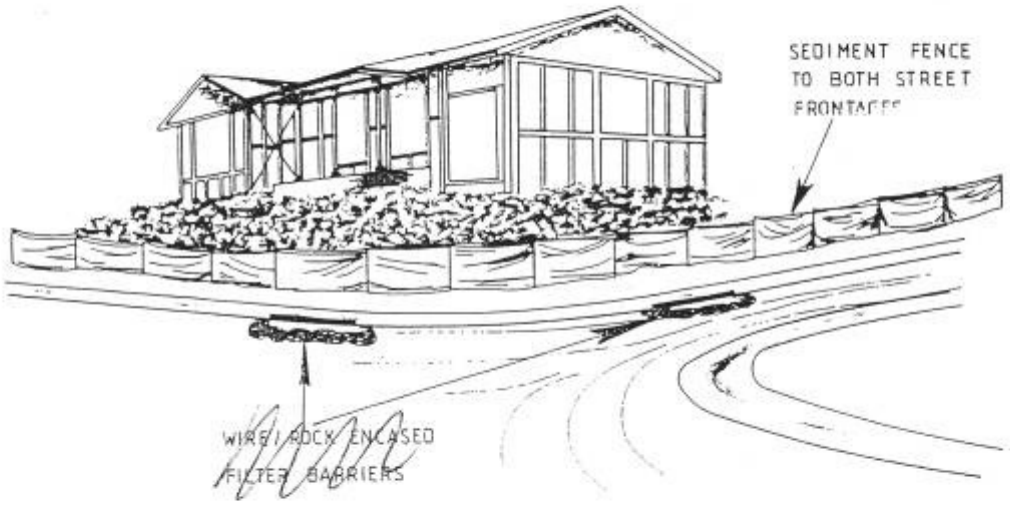
2. It is important to remember that the sediment fence must not be placed outside your property boundary – install the fence on or inside your boundary alignment.

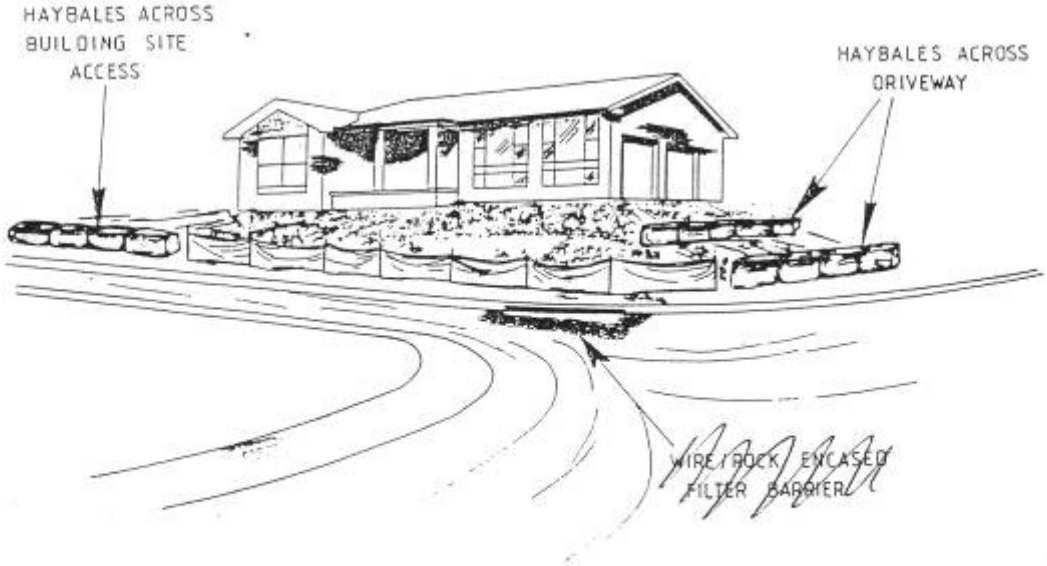
3. Your erosion control materials are available from the following distributors:

    a) Haybales – Norco (Foleys Rd, Lismore); Alstonville Produce Store (Main St, Alstonville)
    b) Steel posts – any major hardware store
    c) Silt stop fabric – (Hessian) any major hardware store.

Attachment 4(B)

CORNER HOME SITES

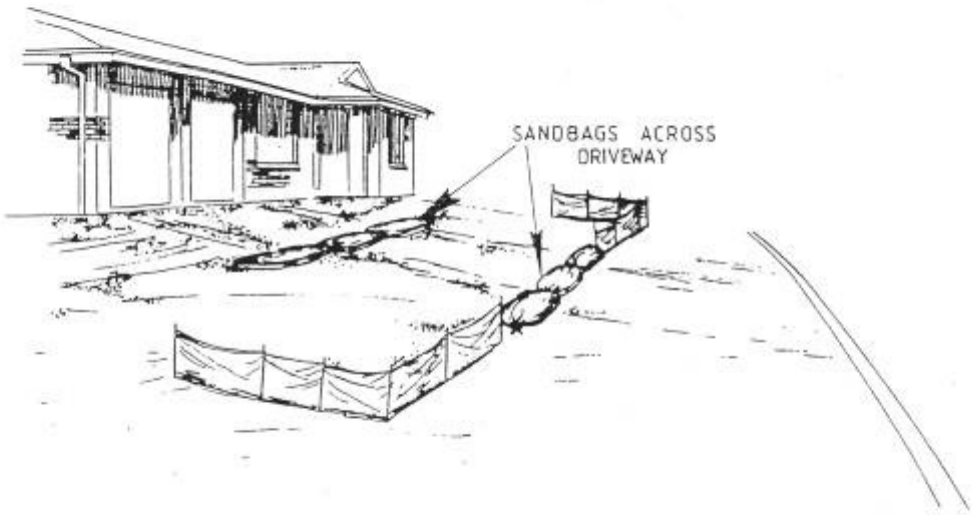


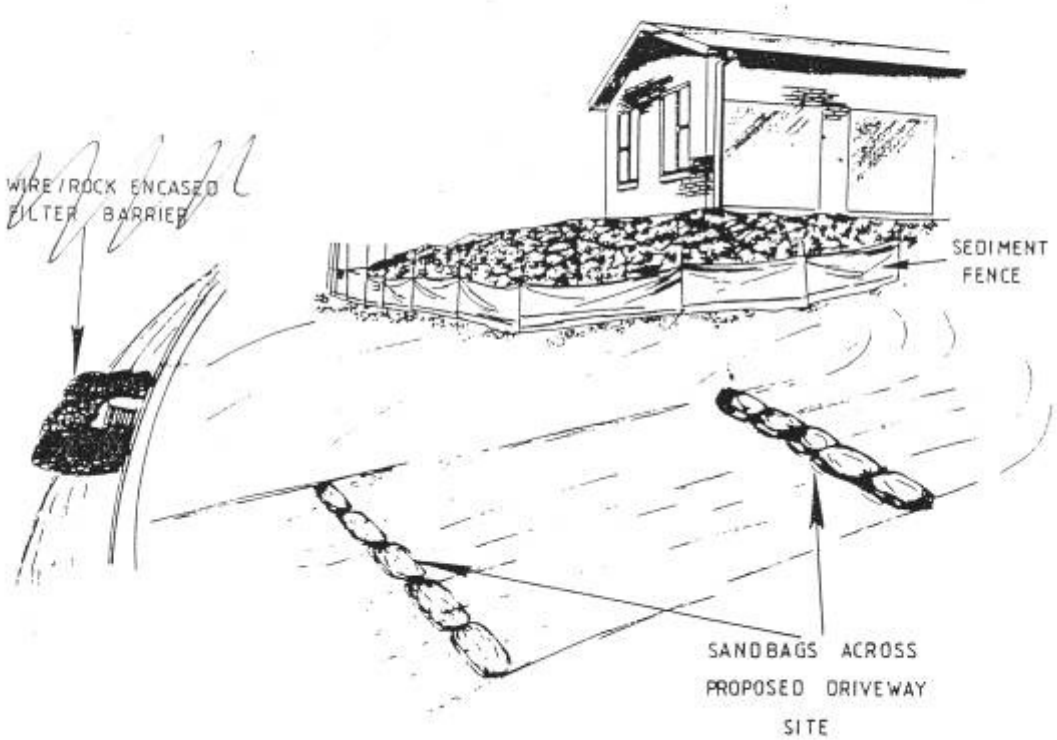


Attachment 4(C)

RELATIVELY FLAT HOME SITES

SLOPING TOWARDS ROADWAY

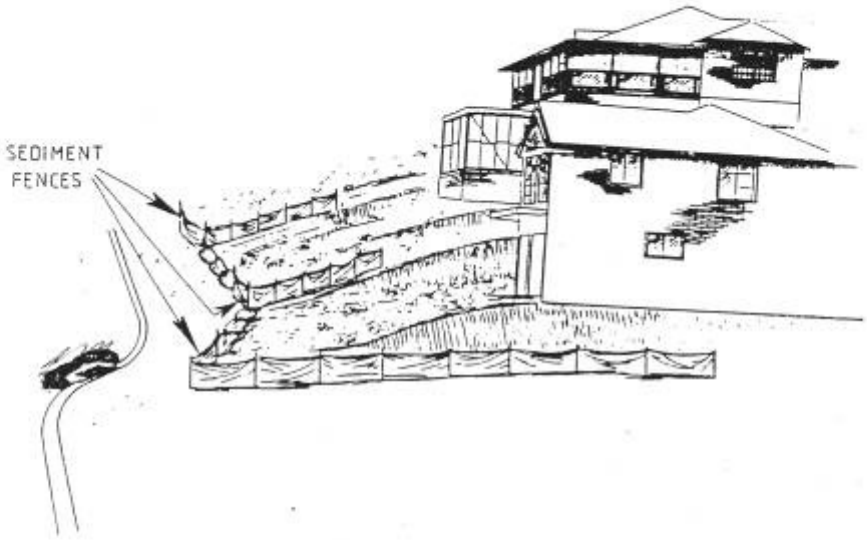




Attachment 4(D)

STEEP HOME SITES

SLOPING TOWARDS ROADWAY



SLOPING AWAY FROM ROADWAY