

LAND CAPABILITY STUDY IN THE SHIRE OF EUROA

**Erosion Risk Assessment: Other Land Use
Constraints: Land Management Guidelines**

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Preface

Three requirements for sound land use planning are:

- an understanding of the extent to which the use will be limited by the natural characteristics of the land,
- the effect the use will have on the land and the water derived from it,

Land capability assessment is a rational and systematic means of obtaining this information.

The Soil Conservation Authority is able to provide land capability information for a range of uses and at different scales to meet the various needs of planning. This information provides a relatively stable base on which to superimpose other planning considerations.

The Scope and Limitations of the Report

- This report is based on an assessment of the physical characteristics of the land. Social or economic factors have not been considered.
- The scale of the assessment has necessitated some generalisation. Site-specific data will be required for detailed planning.
- The precision with which boundaries are mapped is affected by the scale of the map. Subsequent enlargement of the map does not improve the precision and may be misleading.
- The boundaries on the maps usually represent readily seen changes in the land. However, where an important land characteristic changes gradually, the boundary indicates approximately where there is a significant change in the effect on land use.
- No material may be extracted from the report for publication without the written permission of the Soil Conservation Authority.

Part 1 – Summary and Conclusions

Outline of the Study

The study was undertaken at the request of the Department of Planning for use by the Shire of Euroa as an aid to planning and development at a broad scale. The report describes erosion risk and other characteristics of the land which may impose constraints on land development in the Shire.

Euroa Shire (see locality plan) has an area of approximately 1,412 km² and varies from flat plains at about 115 m elevation receiving about 500 mm annual rainfall in the north, to mountainous country up to 825 m elevation in the south where annual rainfall is up to 1,270 mm.

Approximately 95% of the Shire is freehold land, the remainder being largely forested public land. The study concentrates on the freehold land and is less detailed on the public land.

Areas of special interest to the Soil Conservation Authority are the Seven Creeks and Mountain Hut Water Supply Catchments and areas of dryland salting. These are detailed in Part 2.

Conclusions

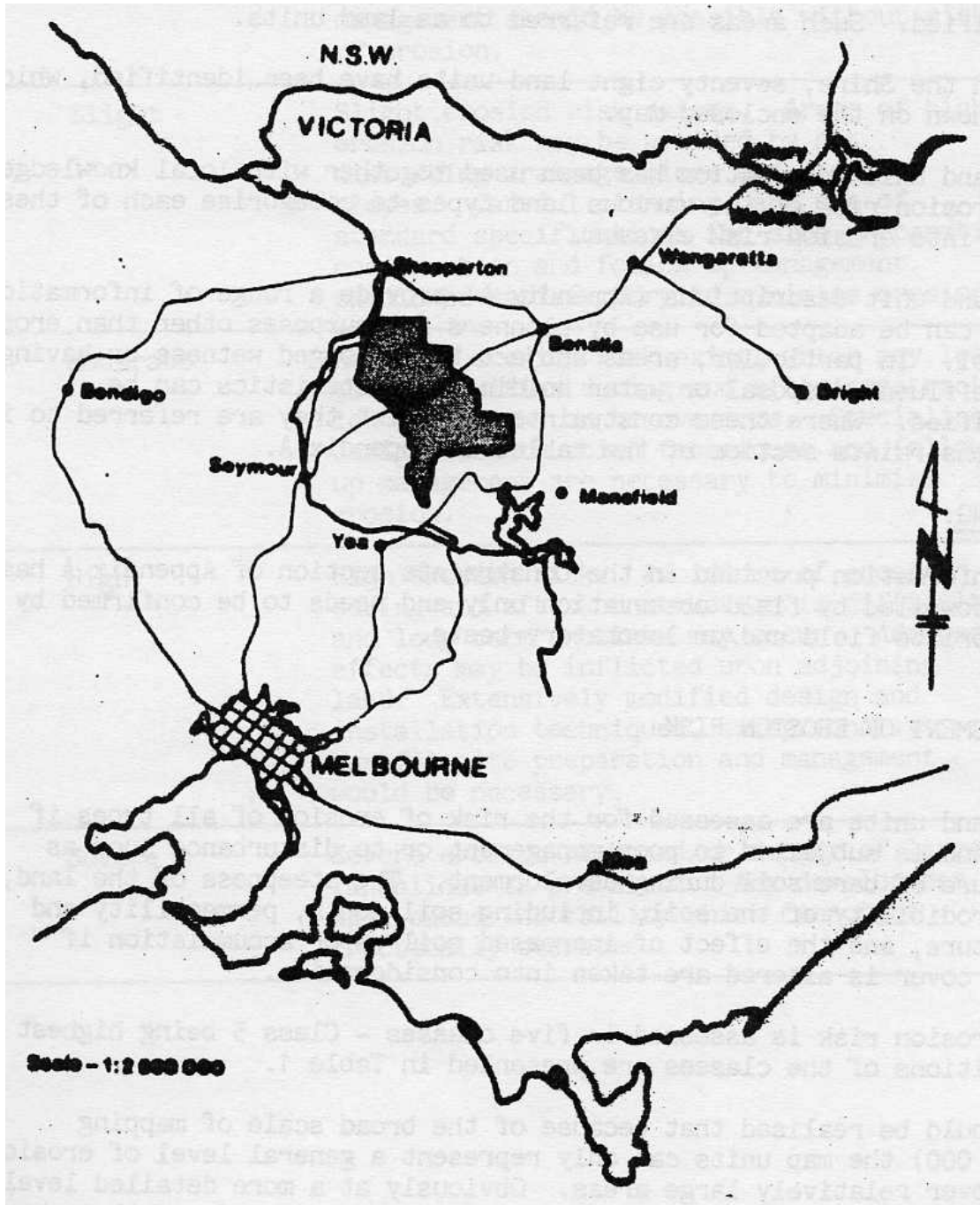
The erosion risk classes in the Shire are shown on the enclosed map. General management guidelines are presented in Table 2. The main conclusions and recommendations are summarized below.

- (i) Land with severe erosion risk (Class 5) comprises 13% of the Shire, of which 70% is freehold. This land is considered highly hazardous and should have strong limitations placed upon its development.
 - It is recommended that subdivision of land in Erosion Risk Class 5 should not be permitted unless the developer can demonstrate to the satisfaction of the Soil Conservation Authority that the development will not result in increased soil erosion from the area.
 - Permanent clearing of Class 5 land should be prohibited and reforestation should be actively encouraged. In general, such land should be considered as best used for forestry and passive recreation.
- (ii) Land with a high erosion risk (Class 4) comprises 10% of the Shire, most of which is freehold.
 - Intensive small-lot subdivision and clearing should be discouraged and reforestation should be encouraged.
 - It is recommended that all proposals for development of land in Erosion Risk Class 4 be referred to the Soil Conservation Authority for specific advice on soil conservation requirements at the earliest possible stage.
- (iii) Land with a moderate erosion risk (Class 3), comprises 22% of the Shire. Development of most of the moderate risk land should be possible without causing increased erosion provided specialised techniques and careful

management, which take account of the natural characteristics of the land, are adopted.

In particular, areas where water naturally concentrates should not be disturbed, and disposal of water which would be concentrated by the development should be carefully planned.

- Advice on the need for specialised design and construction techniques and follow-up management should be sought from the Soil Conservation Authority prior to approval of any development.
- (iv) Although land in Erosion Risk Class 2 and 1 is not generally regarded as presenting significant erosion problems there may be small areas of higher risk which would require special management within the areas shown in those Classes on the map. Where such areas become apparent, the Soil Conservation Authority should be consulted for advice on appropriate management.



Locality plan – Shire of Euroa

Part 2 – Technical aspects of the Study

Outline of the Methods

In order to identify and map areas of land with differing land capability, a systematic study of the natural characteristics of the land has been made. Areas of land which have consistent slope, soils and native vegetation on similar rock types and with a limited range of climate are identified. Such areas are referred to as land units.

Within the Shire, seventy eight land units have been identified, which are shown on the enclosed map.

The land unit information has been used together with local knowledge of the erosion risk of the various land types to categorize each of these units into erosion risk classes.

The land unit descriptions (Appendix A) provide a range of information which can be adapted for use by planners for purposes other than erosion control. In particular, areas subject to prolonged wetness or having poor effluent disposal or water holding characteristics can be identified. Where these constraints may exist they are referred to in the Constraints section of the tables in Appendix A.

Warning:

The information provided in the Constraints section of Appendix A has been compiled by field observation only and needs to be confirmed by appropriate field and/or laboratory tests.

Assessment of Erosion Risk

The land units are assessed for the risk of erosion of all types if the land is subjected to poor management or to disturbance such as exposure of bare soil during development. The steepness of the land, the erodibility of the soil, including soil depth, permeability and structure, and the effect of increased soil-water accumulation if plant cover is altered are taken into consideration.

The erosion risk is assessed in five classes – Class 5 being highest. Definitions of the classes are presented in Table 1.

It should be realized that because of the broad scale of mapping (1:50,000) the map units can only represent a general level of erosion risk over relatively large areas. Obviously at a more detailed level, local variations will be found. It is important therefore, that where areas of land are nominated for intensive development, such as small lot subdivision, the need for further detailed mapping at a much larger scale is recognised.

Table 1 – Erosion Risk Classes

Class	Erosion Risk	General Limitations on Development
1	None to very slight	Erosion risk does not occur or is very slight. Standard designs and installation techniques and normal site preparation and management should be possible without risk of erosion.
2	Slight	Slight erosion risk exists. Areas of high erosion risk may be avoided by not disturbing drainage lines and steeper slopes. Careful planning, and use of standard specifications for site preparation, construction and follow-up management should be satisfactory to minimise erosion.
3	Moderate	Moderate erosion risk exists which may lead to difficulties during and after construction but which can be overcome. Specialised design, construction techniques and follow-up management are necessary to minimise erosion.
4	High	High erosion risk. Avoidance of erosion during and after construction is difficult and long term problems may occur. Adverse effects may be inflicted upon adjoining land. Extensively modified design and installation techniques, exceptionally careful site preparation and management would be necessary.
5	Severe	Severe erosion risk and/or danger of large landslides is prevalent. Any development will cause instability which cannot be practically overcome.

Management Guidelines

There are considerable variations in standards of land management which can substantially effect stability, particularly in areas with high erosion risk. Similarly, techniques of earthwork construction and follow-up treatment can vary considerably with possible significant or drastic effect upon stability where these are inadequate or inappropriate.

The guidelines in Table 2 outline the kind and levels of management considered necessary to guard against unacceptable land deterioration within each erosion risk map unit.

Table 2 – Land Management Guidelines

Class	Erosion Risk	Management Guidelines
1	None to very slight	<p>Generally no specific conservation management practices are required in this map unit, except along drainage lines where erosion may occur.</p> <p>To minimise the danger of erosion in drainage lines, avoid disturbance and maintain a protective vegetative cover.</p> <p>Roads which cross drainage lines where high flows are likely should be designed with adequate culvert capacity or alternatively low profile floodway fords. Crossing should be as near as practicable at right angles to the flow to minimise cost and erosion potential.</p> <p>To avoid problems with spillways when siting farm dams in drainage lines which carry large flows, off-stream storages are recommended.</p>
2	Slight	<p>Generally only limited special management inputs are required in this map unit to prevent soil erosion, except along drainage lines where exposed erosion is likely to occur.</p> <p>To minimise the danger of erosion in drainage lines, avoid disturbance and maintain a protective vegetative cover.</p> <p>Roads which cross drainage lines where high flows are likely, should be designed as for Unit 1 above. In addition, roads should be aligned close to contour and have adequate surface and/or subsurface cross drainage or be aligned directly up and down the slope with drainage water dispersed laterally.</p> <p>Disturbed areas caused during construction works should be revegetated by topsoiling and sowing.</p> <p>To avoid problems with spillways when siting farm dams in drainage lines which carry large flows, off-stream storages are recommended.</p> <p>Planning for fence locations should take account of significant topographical features so that it is possible to conform to the criteria above.</p>

Class	Erosion Risk	Management Guidelines
3	Moderate	<p>Specialised land management techniques are required to minimise soil erosion. Moreover, localised areas of severe risk occur in which intensive development of any kind should be avoided.</p> <p>To minimise the danger of erosion in drainage lines, avoid disturbance and maintain a protective vegetative cover.</p> <p>Employ contour cultivation or minimum tillage techniques for cropping and contour cultivation for pasture establishment.</p> <p>Locate roads and fences on contour, along ridges or directly up and down slope. Disperse water from roads at frequent intervals by surface or subsurface drainage. Design roads as recommended under Unit 1 above.</p> <p>Take care to minimise disturbed areas during construction and undertake adequate soil conservation measures. Conserve topsoil for respreading after construction. Revegetation of these areas may require special treatment as well as sowing and adequate maintenance.</p> <p>All dams constructed in this unit will require careful siting, design and construction techniques.</p> <p>Generally a vigorous vegetative ground cover should be maintained throughout this unit. Existing timbered areas should remain and reforestation should be encouraged in the more hazardous areas.</p> <p>Subdivision into areas of small lots could cause increased erosion unless carefully planned, and due consideration is given to topographical features. Planning of fence locations should also take into account these features so that it is possible to conform to the above criteria.</p> <p><u>It is recommended that:</u></p> <p>Advice on the need for specialised design and construction techniques and follow-up management should be sought from the SCA prior to approval of any development.</p>
4	High	<p>High inputs of specialised land management techniques are required to minimise soil erosion and/or landslides. Localised areas of severe risk occur in which any development should be avoided.</p> <p>Employ contour cultivation or aerial seeding for pasture establishment. Specialised management techniques for grazing are required. Cropping is not advisable. SCA advice should be sought.</p> <p>A vigorous vegetative ground cover should be maintained throughout this unit. Prevention of further forest clearing is very desirable and reforestation should be encouraged.</p> <p>All earthworks, including dam construction, roading and other construction works, should employ conservation specifications suitable for each site and include topsoil saving, rapid revegetation, and other soil stabilisation measures and maintenance.</p>

Class	Erosion Risk	Management Guidelines
		<p>Limited subdivision may be possible with careful planning and due consideration to topographical features.</p> <p>SCA advice should be sought at the earliest planning stage.</p> <p>Planning of fence locations should take into account topographical features to avoid stock concentration in hazardous areas. SCA advice should be sought.</p> <p><u>It is recommended that:</u></p> <p>All proposals for development of land in Unit 4 be referred to the SCA for specific advice on soil conservation requirements at the earliest possible stage.</p> <p>Intensive small-lot subdivision and clearing should be discouraged, and reforestation should be encouraged.</p>
5	Severe	<p>Any land disturbance will require extremely high levels of specialised management input to minimise soil erosion and/or landslides. Intensive development of any kind is undesirable and should be avoided.</p> <p>Cultivation is inadvisable. Pastures should be sown by aerial seeding only and maintained as a vigorous ground cover.</p> <p>Grazing should be strictly controlled and consultation with the SCA on grazing management is highly recommended.</p> <p>Clearing of timber should be prohibited unless for timber harvesting and then should be strictly controlled and the area reforested immediately after. Reforestation of existing cleared areas should be actively encouraged.</p> <p>Earthworks of any kind should be discouraged except for emergency or fire protection purposes. In these instances strict attention to design specifications according to SCA requirements should be mandatory.</p> <p>Subdivision should be discouraged. However, isolated areas may be suitable for limited development. Such areas would require detailed terrain evaluation due to the severe risk involved.</p> <p>Planning of fence locations should take into account topographical features to minimise erosion by stock trafficking. SCA advice should be sought.</p> <p><u>It is recommended that:</u></p> <p>Subdivision of land in this map unit should not be permitted unless the developer can demonstrate to the satisfaction of the SCA that the development will not cause increased soil erosion or land deterioration.</p> <p>Permanent clearing of land should be prohibited and reforestation actively encouraged.</p> <p>In general the area should be regarded as being best used for forestry and passive recreation.</p>

Areas of Special Conservation Interest

Seven Creeks and Mountain Hut Creek Catchments (Euroa Water Supply)

This area is in the process of being considered for Proclamation as a Water Supply Catchment under the provisions of the Soil Conservation and Land Utilization Act.

The area should be given special consideration with regard to water quality control and provision made in any planning scheme to control development accordingly.

Proposed land use changes should be compatible with water quality control or provision made to ensure minimum deterioration to water quality. Proposals for development of areas within this catchment should be referred to the Soil Conservation Authority regardless of the Erosion Risk Class of the land in question.

Dryland Salting

The occurrence of Dryland Salting within the Shire presents a significant constraint upon development in certain areas of the Shire. The most significant of these areas have been mapped by the Soil Conservation Authority.

Soil salting is defined as the accumulation of salts in the top 600 mm of soil. Soil salting causes the death of plants, the breakdown of soil structure and extreme erosion hazard.

It can be recognised in its early stages by the disappearance of pasture grasses, and their replacement by salt tolerant species such as sea barley grass (*Hordeum marinus*) and the appearance of small patches of bare ground. In cases of severe salting, areas can become totally denuded of vegetation.

Dryland salting is usually caused by the presence of groundwater at or close to the soil surface. Over time evaporation of water leaves behind salts which eventually build up into damaging proportions.

The high water tables associated with dryland salting may be attributed to the removal of vegetation, particularly trees having deep root systems, from higher lands. This results in an increase of unused underground water which eventually causes the rising of ground water on the lower slopes.

It is recommended that Soil Conservation Authority advice should be sought on development applications in or near areas of known or suspected dryland salting.

References

Report on the North Eastern Area (District 2), Land Conservation Council, August 1973.

Appendix A – Land Unit Descriptions

Shire of Euroa

Land Unit Name Brooklands

GEOLOGY	Devonian Granite			RAINFALL: 750 – 1000 mm
MAP SYMBOL	BG	BR	BW	
EROSION RISK RATING	2	3	2	
LAND FORM	Gentle Slopes	Rolling	Gentle Slopes Wetlands	
SLOPE %	1 -6	5 – 15	4 - 10	
SOILS	Red duplex	Uniform sand, brown gradational & red duplex	Yellow gradational	
NATIVE VEGETATION	Woodland to open forest: Narrow leaf & Broad leaf Peppermints, Candlebark gum, Red Stringybark, Long leaf Box and Blue Gum			
CONSTRAINTS			Springs, seepage areas and localised waterlogging is a constraint on septic effluent disposal and building foundations	
	Surface water storage not assured due to porous nature of sub-surface material.			

Shire of Euroa

Land Unit Name Castleberg

GEOLOGY	Devonian Granite					RAINFALL: 625-750 mm
MAP SYMBOL	CC	CH	CP	CS	CV	
EROSION RISK RATING	5	4	3	5	5	
LAND FORM	Colluvial valley	Hilly slopes	Plateau areas	Steep slopes	Very steep slopes	
SLOPE %	Various	10 – 20	5 – 15	15 – 30	30+	
SOILS	Coarse uniform sandy	Yellow duplex	Friable brown gradational	Red duplex	Massive gradational	
NATIVE VEGETATION	Woodland: Narrow and Broad leaf Peppermint, Red Stringybark, Yellow Box, Apple Box, Manna Gum, Blue Gum & White Gum					
CONSTRAINTS	Water flows concentrated, gully erosion prone	Scattered surface rock	Rocky & isolated by steep surrounding slopes	Rocky with some rock slide potential	Very rock with rock slides	
	Storage of surface water in these units is generally difficult due to steepness, rockiness and variation in soil types. Incidence of shallow or surface rock and seepage areas limit availability of effluent disposal. Particularly prone to sheet and gully erosion if disturbed or mismanaged.					

Shire of Euroa

Land Unit Name

GEOLOGY	Devonian: Sedimentary – Mudstones, Siltstones, Sandstones				RAINFALL: 625 – 750 mm	
MAP SYMBOL	DF	DG	DM	DS	DV	
EROSION RISK RATING	4	2	3	5	5	
LAND FORM	Colluvial fan	Gentle slopes	Moderate slopes	Steep slopes	Very steep slopes	
SLOPE %	4 – 10	4 – 10	10 – 20	20 – 35	35+	
SOILS	Gravel material	Yellow duplex	Stony red duplex		Stony gradational	
NATIVE VEGETATION	Open forest: Broad leaf Peppermint, Red Stringybark, Red Ironbark, Red Box, Grey Box, Long leaf Box, Apple Box, Blakeley's Red Gum					
CONSTRAINTS	Gravel stripped & intensively gullied	-	Shallow soils		Shallow soils and small landslips	
<p>Storage of surface water can be difficult due to steepness and rockiness.</p> <p>Some areas are subject to tunnel erosion because of a highly dispersible A2 horizon.</p> <p>High runoff poses a hazard to land immediately down slope.</p> <p>Septic effluent disposal may be hazardous in some of the soils due to highly dispersible clay subsoils.</p>						

Shire of Euroa

Land Unit Name Endellea

GEOLOGY	Devonian Granite					RAINFALL: 750-1000 mm
MAP SYMBOL	EC	EH	ER	ES	EV	
EROSION RISK RATING	5	4	3	5	5	
LAND FORM	Creek	Hills	Rolling slopes and crests	Steep slopes	Very steep slopes	
SLOPE %	Various	10 – 20	4 – 10	15 – 30	30+	
SOILS	Various	Red duplex and uniform stony loam	Red duplex and some yellow duplex	Red duplex and uniform stony loam		
NATIVE VEGETATION	Open forest: Narrow leaf and Broad leaf Peppermint, Red Box, Long leaf Box, Red Stringybark, Candlebark, Messmate, Blue gum					
CONSTRAINTS	Creeks and flood paths	Rocky	Drainage lines are gully prone	Rocky with some landslips	Very rocky with landslips and rock slides	
	Soils and slope generally preclude the storage of surface water in these units. These units are susceptible to severe sheet and gully erosion. Mass soil movement is prevalent caused by clearing and subsequent land-use.					

Shire of Euroa

Land Unit Name Fraydia

GEOLOGY	Recent deposits of silts, sands and clays				RAINFALL: 500 – 625 mm	
MAP SYMBOL	FC	FD	FF	FP	FR	FT
EROSION RISK RATING	2	2	1	1	2	1
LAND FORM	Creeks	Drainage lines	Flood plain	Plain	Lower terraces	Higher terraces
SLOPE %	0 – 3	0 – 3	0 – 3	0 – 3	0 – 3	0 – 3
SOILS	Uniform clays			Yellow duplex		Red duplex
NATIVE VEGETATION	Woodland: Grey Box, Yellow Box, Red Gum, Murray Pine, Buloke					
CONSTRAINTS	Flood paths	Flood paths of major drainage lines	Flood area of Pranjip Creek	Can be seasonally wet		
	<p>Water storage is generally favourable in these units, but deep sand leads may be found near streams.</p> <p>Some of the area is subject to flooding by stream out flows, and some flat areas are subject to prolonged periods of inundation.</p> <p>These units are not erosion prone except in water courses and depressions.</p> <p>Salting is present in some depressions, which in itself is a restraint on development and may lead to an acceleration of erosion.</p> <p>Disposal of septic effluent may pose a problem because of the low permeability of some of the soils.</p>					

Shire of Euroa

Land Unit Name Gallgap

GEOLOGY	Devonian Granite			RAINFALL: 750 – 1000 mm
MAP SYMBOL	GH	GS	GV	
EROSION RISK RATING	4	5	5	
LAND FORM	Hilly slopes	Steep slopes	Very steep slopes	
SLOPE %	10 – 20	15 – 30	30+	
SOILS	Yellow duplex and uniform stony loam	Uniform stony loam		
NATIVE VEGETATION	Open forest: Broad leaf and Narrow leaf Peppermint, Red Box, Long leaf Box, Red Stringybark, Candlebark			
CONSTRAINTS	Moderate steep	Rocky – mainly forested	Very rocky with rock faces – forested	
<p>Rockiness, soils and slope generally preclude the storage of surface water in these units</p> <p>These units are susceptible to severe sheet and gully erosion</p> <p>Mass soil movement is prevalent caused by clearing and subsequent land-use.</p>				

Shire of Euroa

Land Unit Name Inverell

GEOLOGY	Devonian Granite				RAINFALL: 750 – 1000 mm	
MAP SYMBOL	IC	IG	IH	IR	IS	IW
EROSION RISK RATING	5	2	4	3	5	3
LAND FORM	Creeks	Gentle slopes	Moderate hills	Rolling	Steep hills	Springs and wetlands in gentle to moderate slopes
SLOPE %	Various	2 – 88	10 – 20	5 – 15	15 – 30	5 – 15
SOILS	Various	Red duplex and some yellow duplex	Brown gradational	Red duplex and some yellow duplex	Uniform stony loam	Yellow duplex
NATIVE VEGETATION	Open forest: Narrow leaf Peppermint, Candlebark, Broad leaf Peppermint, Red Stringybark, Red Box, Long leaf Box, Messmate, Blue Gum					
CONSTRAINTS	Floodpaths	-	Bouldery and rocky	Some rocks on rises	Bouldery with rock outcrops	Springs and spring affected areas
	Soils and slope can preclude the storage of surface water in these units Mass movement is prevalent caused by clearing and subsequent land-use. These units are susceptible to severe sheet and gully erosion if the soil is disturbed or mismanaged.					

Shire of Euroa

Land Unit Name Lowana

GEOLOGY	Devonian sedimentary mudstones, siltstones and sandstones			RAINFALL: 500 – 625 mm
MAP SYMBOL	LG	LL	LM	
EROSION RISK RATING	3	2	4	
LAND FORM	Gentle slopes	Lower slopes	Moderate slopes	
SLOPE %	3 – 8	1 – 4	6 – 15	
SOILS	Red duplex	Yellow duplex	Stony gradational	
NATIVE VEGETATION				
CONSTRAINTS		Seasonally wet	Gravel stripping & shallow gravelly soils	
	<p>Storage of surface water can be difficult because of rockiness.</p> <p>Some areas are subject to tunnel erosion due to a highly dispersible A2 horizon.</p> <p>High runoff causes a hazard to land immediately down slope.</p> <p>Septic effluent disposal may be hazardous in some of the soils due to their highly dispersible clay subsoil.</p>			

Shire of Euroa

Land Unit Name Montview

GEOLOGY	Devonian Granite			RAINFALL: 1000 – 1250 mm
MAP SYMBOL	MH	MS	MV	
EROSION RISK RATING	4	5	5	
LAND FORM	Hilly	Steep slopes	Very steep slopes	
SLOPE %	10 – 20	20 – 30	30+	
SOILS	Brown gradational	Uniform stony loam		
NATIVE VEGETATION	Open forest: Narrow leaf and Broad leaf Peppermint, Messmate, Blue Gum, Stringybark, Long leaf Box			
CONSTRAINTS	Moderately steep sections of very high forested hills	Often rocky slopes	Very rocky faces	
	Soils, slope and rockiness generally preclude the storage of surface water. These units are susceptible to rapid erosion if the soil is disturbed or mismanaged.			

Shire of Euroa

Land Unit Name Nogoia

GEOLOGY	Pleistocene clays, silts, sands and gravels				RAINFALL: 500 – 625 mm
MAP SYMBOL	NC	ND	NP	NR	NS
EROSION RISK RATING	2	2	1	1	2
LAND FORM	Creeks	Major drained lines	Plains	Riverine zone	Sandy rises
SLOPE %	0 – 3	0 – 3	0 – 3	0 – 2	2 – 6
SOILS	Various	Uniform clays	Mottled grey to yellow duplex sometimes gilgai	Yellow duplex, red duplex and uniform sands	Uniform sands
NATIVE VEGETATION	Woodland: Grey Box, Yellow Box, Red Gum				
CONSTRAINTS	Flood paths of major streams	Flood paths of major drainage lines	Seasonally very wet	Seasonally very wet with numerous stream paths	Sandy levees of adjacent streams
	<p>Water storage is mostly favourable in these units, but deep sand leads may be encountered near streams.</p> <p>Some of the area is subject to flooding by stream outflow and some flat areas are subject to prolonged periods of inundation.</p> <p>These units are not erosion prone except in water courses and depressions.</p> <p>Salting is prevalent in some depressions, which in itself is a restraint on development and may lead to an acceleration of erosion.</p> <p>Disposal of septic effluent may pose a problem because of low permeability of some of the soils.</p>				

Shire of Euroa

Land Unit Name Roxby

GEOLOGY	Devonian Rhyodacite				RAINFALL: 750 – 1000 mm	
MAP SYMBOL	RD	RG	RH	RM	RS	RV
EROSION RISK RATING	5	2	4	3	5	5
LAND FORM	Drainage lines	Gentle slopes	Hilly	Moderate colluvial slopes	Steep slopes	Very steep slopes
SLOPE %	Various	3 – 10	15 – 25	8 – 15	25 – 35	35+
SOILS	Various	Yellow duplex	Red duplex and uniform stony loams	Yellow duplex	Uniform stony loams and occasional red duplex	
NATIVE VEGETATION						
CONSTRAINTS	Narrow drainage lines in the hills	-	Rocky areas	Some rocky areas and receives rapid runoff from steep rocky hills above	Rocky with some rock slides	Rocky with many rockslides
	<p>Water storage in these units is not assured due to the porous nature of most of the sub-surface material.</p> <p>These units are susceptible to rapid erosion if the soil is disturbed or mismanaged.</p> <p>Land slips are prevalent on steeper slopes.</p> <p>Springs may cause large areas of inundation.</p> <p>Septic effluent disposal may be hazardous in some of the soils of these units because of the shallowness of permeable soil over rock or other impervious material.</p>					

Shire of Euroa

Land Unit Name Roxby Valley

GEOLOGY	Devonian Rhyodacite				RAINFALL: 750 – 1000 mm	
MAP SYMBOL	RvL	RvP	RvR	RvU	RvW	
EROSION RISK RATING	2	1	2	2	4	
LAND FORM	Lower colluvial slopes	Plains	Stream flats	Upper colluvial slopes	Major drainage lines	
SLOPE %	3 – 10	1 – 5	0 – 3	8 – 15	Various	
SOILS	Mottled yellow to grey duplex					
NATIVE VEGETATION	Open forest: Broad leaf Peppermint, Red Stringybark, Red Box.					
CONSTRAINTS	Seasonally wet		Seasonally very wet, salting		Spring areas	
	<p>Water storage in these areas is not assured due to the porous nature of some of the subsoils.</p> <p>These units are subject to rapid erosion if the soil is disturbed or mismanaged.</p> <p>Springs may cause large areas of inundation.</p> <p>Septic effluent disposal may be hazardous in some of the soils of these units due to the prevalence of springs and soaks.</p>					

Shire of Euroa

Land Unit Name Southern

GEOLOGY	Pleistocene sediments (clays, silt, sand and gravel)		RAINFALL: 625 – 750 mm
MAP SYMBOL	SoP	SoR	
EROSION RISK RATING	1	2	
LAND FORM	Plains	Major drainage lines	
SLOPE %	1 – 3	2 – 5	
SOILS	Yellow duplex	Various	
NATIVE VEGETATION	Woodland: Grey Box, White Box, Red Gum, Yellow Box		
CONSTRAINTS	Seasonally wet	Stream flood zones	
	<p>Storage of surface water generally favourable but deep sand leads occur throughout particularly near streams.</p> <p>Erosion risk exists in areas over which water flows.</p> <p>Septic effluent disposal may be hazardous in some areas due to inundation, high permeability near streams or low permeability of some soils.</p>		

Shire of Euroa

Land Unit Name Strathbogie

GEOLOGY	Devonian Granite				RAINFALL: 900 – 1100 mm	
MAP SYMBOL	SC	SG	SH	SR	SS	SW
EROSION RISK RATING	4	2	4	3	5	3
LAND FORM	Creeks	Gentle slopes	Hilly	Rolling	Steep hills	Gentle slopes, springs and spring affected areas
SLOPE %	Various	3 – 7	10 – 20	6 – 15	20+	5 – 12
SOILS	Various	Yellow duplex	Red duplex with some yellow duplex		Massive gradational	Dominantly yellow duplex
NATIVE VEGETATION	Open forest: Broad and Narrow leaf Peppermint, Candlebark, Blue Gum, Swamp Gum and Blackwood					
CONSTRAINTS	Water flows concentrated, gully erosion prone	-	Surface rock on upper slopes	Surface rock on some rises	Large rock outcrops, scattered surface rock throughout	Springs, seepage areas and waterlogging is a constraint on septic effluent disposal and building foundations
	Surface water storage not assured due to porous nature of sub-surface material. Particularly prone to sheet and gully erosion if disturbed or mismanaged.					

Shire of Euroa

Land Unit Name Tennoreef

GEOLOGY	Tertiary Basalt			RAINFALL: 625 – 750 mm
MAP SYMBOL	TG	TR	TH	
EROSION RISK RATING	1	2	3	
LAND FORM	Gentle slope	Rolling slopes	Hills and steeper slopes	
SLOPE %	2 – 6	5 – 12	10+	
SOILS	Fine structured brown gradational soils			
NATIVE VEGETATION	Woodland: Red Stringybark			
CONSTRAINTS		Some stony rises	Very stony sometimes with rocky scarps	
	The ability of soils to hold water is limited due to the non-dispersible nature of the soils.			

Shire of Euroa

Land Unit Name Wilacroft

GEOLOGY	Metamorphosed Devonian Mudstone, Siltstone and Sandstone				RAINFALL: 600 – 800 mm
MAP SYMBOL	WH	WR	WS	WV	
EROSION RISK RATING	3	2	4	5	
LAND FORM	Hilly slopes	Rolling slopes	Steep slopes	Very steep slopes	
SLOPE %	10 – 25	5 – 15	20 – 35	35+	
SOILS	Yellow to red gradational with some shallow uniform gravelly loams		Uniform stony loams and red and brown gradational soils		
NATIVE VEGETATION	Open forest: Stringybark, Candlebark, Narrow leaf and Broad leaf Peppermint				
CONSTRAINTS	Storage of surface water is limited by slope and the shallowness of the soils.				

Shire of Euroa

Land Unit Name Yarana

GEOLOGY	Recent Fan Deposits of Hill Wash and Scree				RAINFALL: 625 – 750 mm	
MAP SYMBOL	YC	YD	YF	YH	YL	YR
EROSION RISK RATING	4	4	2	4	2	3
LAND FORM	Creeks	Major drainage lines	Flats	Hills	Lower colluvial slopes	Rolling
SLOPE %	Various	Various	0 – 2	15 – 20	2 – 8	10 – 20
SOILS	Various	Mottled yellow duplex		Red and yellow gradational	Mottled yellow duplex	Red duplex
NATIVE VEGETATION	Open forest: Long leaf Box, Red Stringybark, Red Box, Yellow Box, Blakely's Red Gum					
CONSTRAINTS	Flood paths		Low lying and wet	Granite tors on upper slopes	Seasonally wet	Some rocky areas
	<p>The storage of surface water is not assured due to the porous nature of some of the sub-surface materials.</p> <p>The units are subject to rapid erosion if the soil is disturbed or mismanaged.</p> <p>Salting is prevalent in some depressions, which in itself is a restraint on development and may lead to an acceleration of erosion.</p> <p>Disposal of septic effluent can pose problems of low permeability of some of the soils.</p>					

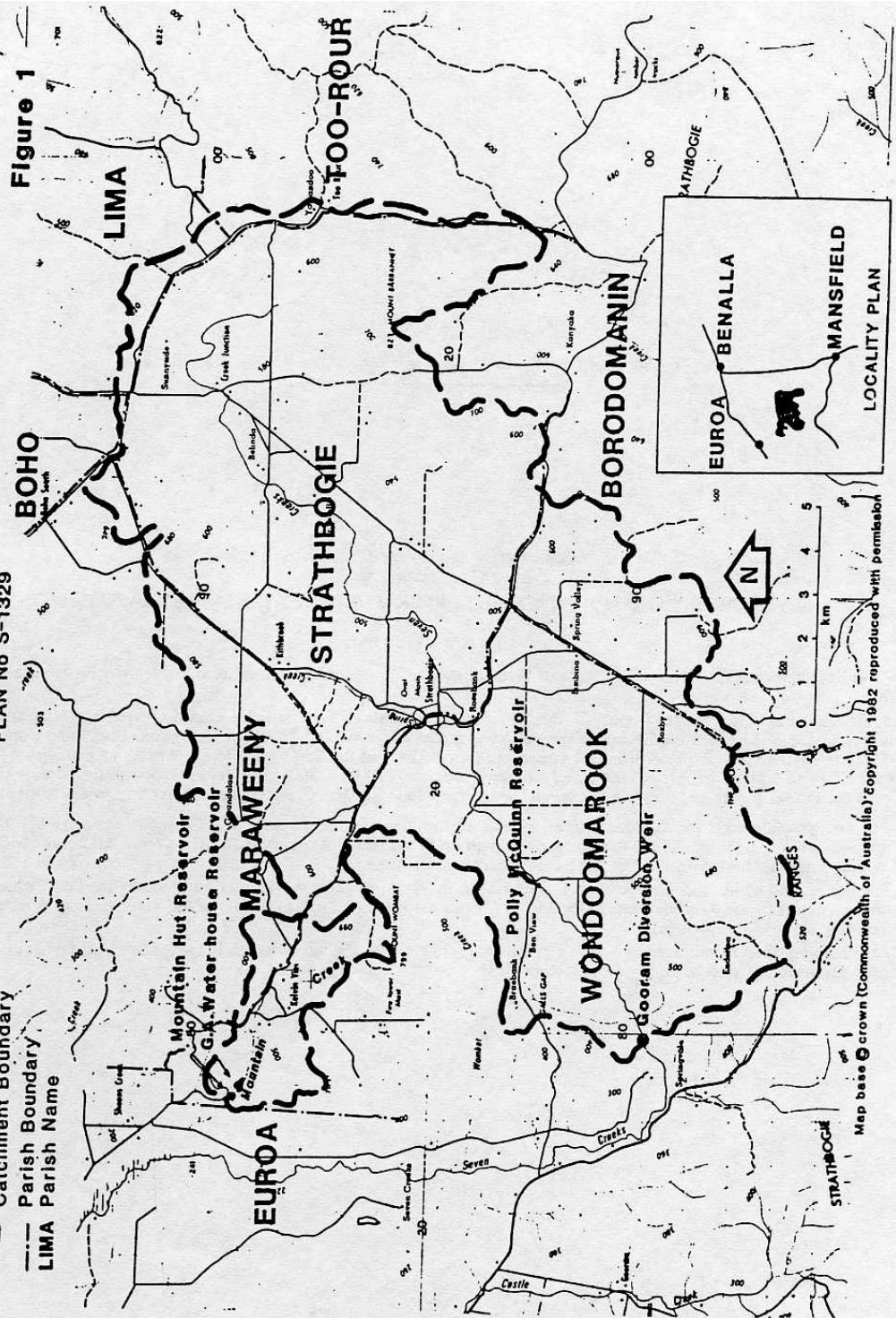
Shire of Euroa

Land Unit Name Yarana (cont)

GEOLOGY	Recent Fan Deposits of Hill Wash and Scree		RAINFALL: 625 – 750 mm
MAP SYMBOL	Yu	YW	
EROSION RISK RATING	3	3	
LAND FORM	Upper colluvial slopes	Gentle to moderate slopes with spring and spring affected areas	
SLOPE %	5 – 12	3 – 12	
SOILS	Red and yellow gradational and uniform sands	Uniform sands and clays	
NATIVE VEGETATION			
CONSTRAINTS	Receives rapid runoff from the hills	Wet spring zones.	

**SEVEN CREEKS & MOUNTAIN HUT CREEK (EUROA)
WATER SUPPLY CATCHMENT**

PLAN No S-1329



- LEGEND**
- Catchment Boundary
 - - - Parish Boundary
 - LIMA Parish Name

Given under my Hand and the Seal of the State of Victoria aforesaid, at Melbourne, this twenty-sixth day of June in the year of Our Lord one thousand nine hundred and eighty-four and in the thirty-third year of the reign of Her Majesty Queen Elizabeth II
(L.S.)

By His Excellency's Command

J. Mc I. YOUNG

GOD SAVE THE QUEEN!
EVAN WALKER
Minister for Planning and Environment

[Extract from the *Victoria Government Gazette*, No. 74, dated 4 July 1984]

Soil Conservation and Land Utilization Act 1958
Land Conservation Act 1970

SEVEN CREEKS AND MOUNTAIN HUT CREEK (EUROA) WATER SUPPLY CATCHMENT

PROCLAMATION

By His Excellency the Governor of the State of Victoria and its Dependencies in the Commonwealth of Australia, &c., &c., &c.

I, the Lieutenant-Governor as Deputy for the Governor of the State of Victoria in the Commonwealth of Australia, by and with the advice of the Executive Council of the said State and having considered a recommendation of the Land Conservation Council in pursuance of the provisions contained in Section 22 (1) of the *Soil Conservation and Land Utilization Act 1958* (No. 6372) and section 5 (1) (b) of the *Land Conservation Act 1970* (No. 8008) do this by Proclamation define the water supply catchment area to be known as the Seven Creeks and Mountain Hut Creek (Euroa) Water Supply Catchment.

The area proclaimed is the catchment to an offlake weir on Seven Creeks adjacent to Crown Allotment 48D, Parish of Wondoomarook and the catchment to a storage reservoir on Mountain Hut Creek adjacent to Crown Allotment 35C, Parish of Wondoomarook, both controlled by the Euroa Waterworks Trust.

The use of land within this area is subject to specification by notice or by determination made by the Soil Conservation Authority, acting under the provisions of section 22 (2) and section 23 (1) (a) (b) and (c) of the *Soil Conservation and Land Utilization Act 1958*, as amended.

The area described is indicated in Figure 1 (Plan No. S-1329), the original of which is lodged at Head Office of the Soil Conservation Authority, 378 Cotham Road, Kew, 3101.