2. PHYSICAL FEATURES OF THE ENVIRONMENT

The main features of the environment which affect land capability for various land uses are:

1. Landform
2. Geology and Soils
3. Climate

In addition, existing land use and vegetation are described.

2.1 Landform and Soils

The terrain I the east of the study area is generally undulating to hilly, with slopes generally between 8 and 30 percent. The west of the area is flat, with slopes less than 3 percent.

The soils in this flat area tend to become waterlogged after average rainfall conditions in winter, and remain so for some time after rain. There are a few indistinct drainage line in this area.

The Dandenong Valley Authority (DVA) controls drainage in the area and has prepared a drainage plan. This drainage provides for the disposal of runoff for urban development throughout the area. Developers are responsible for drainage within their particular area and must comply with DVA requirements.

The following terrain and slope classes were used in mapping the components.

Terrain Classes		Slope Classes	
Code	**Feature**	**Code**	**Slope**
H	Hill	1	Less than 2%
HCR	Hill Crest	2	2-8%
PN	Plain	3	8-15%
DL	Drainage Line	4	15-30%
		5	Greater than 30%

The slope classes are based o the economics of building on various slopes, as outlined by R.C. Neil and P. T. Scales (1975). (1)

The slope indicated in the drainage lines refers to the slope of the drainage line itself not of its sides.

2.2 Geology and Soils

The undulating to hilly areas I the east were formed on Upper Devonian rhyolite and rhyodacite.

Soils on these hills and crests are generally yellow duplex type soils. In places these soils overlay a more dense red and grey mottled clay. Surface texture is loamy fine sand to silty loam and the sub surface texture is fine sandy clay to clay.

A range of hills on the very eastern boundary is formed from colluvial deposits. These generally have brown uniform soils with surface textures of sandy loam.

In the drainage lines the soil is generally a grey or yellow brown duplex soil. Surface texture is sandy loam to sandy clay loam, and the sub surface texture is sandy clay loam to clay.

The flatter land on the western side of the study area, and the major drainage lines, are composed of Quaternary alluvium and generally have grey or yellow brown mottled duplex soils. Surface textures are mostly silty loams, with ywll9oe grey mottled silty clay at a depth of about 50 centimetres.

Along the eastern margin of the study area, uniform sandy loams have developed from Quaternary colluvium in the form of hill wash and fan and slump deposits.

Most soil boundaries correspond with the geological boundaries. Soil profiles were described at a number of sites and laboratory analyses and site descriptions were carried out.

The laboratory analyses include liquid and plastic limits, linear shrinkage and the Emerson slaking and dispersion tests.

2.3 Climate

There is little variation in climate over the study area and so it is of minor importance in determining the relative capability of land within the area.

2.3.1 Rainfall.

The average annual rainfall for Montrose, a nearby rainfall station is 1050 millimetres. The rainfall is winter spring dominant, which is when most of the protracted rain occurs, but high intensity storms causing erosion on bare areas can occur at any time of the year.

2.3.2 Temperature.

The area experiences mild summers and winters. The nearest station where temperatures is recorded is Scoresby where the average daily maximum temperature for February, the hottest month, is 26.7 degrees Celsius, and that for July, the coldest month, is 12.5 degrees Celsius.

2.3.3 Frost.

No figures are available on frost incidence in the study area, but from observation, frost occurs regularly in winter on the flatter land on the western side of the study area.

2.3.4 Length of Growing Season.

The growing season on non-irrigated land is generally from March to December inclusive (i.e. 10 months).

2.4 Existing Land Use

Most of the land in the study area has been cleared for grazing, with a few exceptions.

There is a small amount of urban development in the north eastern corner. Abutting this there are a number of rural/urban allotments, of approximately 5 hectares each, and a large quarry.

In the centre of the area there is a large car wreckers yard and two smaller quarries. Here also there are a few orchards with a small area further to the west being used for intensive cropping.

2.5 Existing Vegetation

As the area is predominantly agricultural and urban land there are few areas of native woodlands remaining. But there are, in the east of the area, small areas of native woodland. These comprise manna and swamp gums in the broader drainage lines and narrow and broad leaf peppermints, longleaf box, messmate and stringybarks on the slopes, crests and narrow drainage lines.

These areas of native vegetation are within the Montrose land system. A detailed description of this system and the original vegetation is in the “Upper Yarra Valley and Dandenong Ranges Land Management and Stream Environment Study”, Volume 3, “A Study of the Land”, Soil Conservation Authority, (1976). (2)

Table 1 - LAND COMPONENT DEFINITIONS Each land type is defined by its soil type and terrain in the top lines, and slope depth to bedrock and depth of a horizon down the left hand columns.

Geology			Lower Devonian Hornfels	Devonian Shale or Devonian Rhyolite or Rhyodacite			Lower Level Quaternary Alluvium		Colluvium Derived from Rhyodacite		Highest Level Quaternary Alluvium
Soil Type With Northcote Key			Yellow Brown Duplex	Yellow Duplex Dy 3.41		Shallow Skeletal Soils	Various Dy 2, Dy 3 Um 6.23		Sandy Loams Uc 2 or Uc 3		Various
Terrain			Hill	Hill or Crest	Drainage Line	Hill or Crest	Plain	Drainage Line	Hill	Drainage Line	Drainage Line
Flood Hazard			-	-	-	-	Less than 1 in 100 Years	Greater than 1 in 100 Years	-	-	Greater than 1 in 1 Year
Slope	Bed-Rock Depth (m)	A Horizon Depth (m)									
0-2	Unspecified						16	17		27	
	1-2	.3-.5		5							
2-8	Unspecified				10	30		1			29
	.5-1	.3-5		7							
		.15	18								
	1-2	.3-.5		2						15	
		.5-1		3					21		
	Greater Than 2						8		20		
										28	
8-15	UNSPECIFIED				11	13				23	
	.5-1	03-35		4							
	1-2	.3-.5		6					22		
	GREATER THAN 2	.3-.5							24		
		.5-.1							25		
15-20	.5-1	.3-.5									
15-30	UNSPECIFIED					19					
	.5-1	.3-.5		31	12	14					
	1-2	.3-.5		9					26		