## SECTION 1 – LAND INVENTORY

Land components were selected as the most convenient means of describing land in the study area. These were delineated on 1:10 000 aerial photographs using stereoscopic interpretation in conjunction with field inspection of selected sites. Field work entailed describing the properties of the soils and land forms, and locating the position of mapping unit boundaries. Four land systems were involved, two on quaternary alluvium, and two on Silurian sediments. The basis of separation on alluvium would be vegetative associations, as discussed under native vegetation. On the Silurian rocks, the separation would be related to steepness. For the purposes of this report the land systems have not been mapped.

Terminology used to describe land in the study is detailed below.

**LAND COMPONENT** An ecosystem which recurs in a landscape and which is recognised by a distinctive combination of climate, geology, topography, vegetation and soil (Reference No. 7).

**PROPORTIONS** Percentage of the survey area occupied by each component.

**CLIMATE** This is given in terms of:
The average annual rainfall, the average annual temperature, and the period in which rainfall exceeds evapotranspiration. This data is derived from the Melbourne meteorological station. (Reference No. 1).

**GEOLOGY** Silurian sedimentary rocks including mudstone and siltstones and quaternary river deposits including clay, silt, sands and gravels. (Reference No. 4).

**TOPOGRAPHY** Two different land forms are recognized in this area. Hills, which occurred on the sedimentary rock, and terraces that correspond to the river deposits. Land forms are further subdivided depending on the position in which they occur in the landscape. Average side slope (%) and the slope shape normal to the contour are given.

**NATIVE VEGETATION STRUCTURE** This refers to the spatial arrangement of the tallest species, in terms of percentage ground cover and height. (Reference No. 11, Appendix III).

**NATIVE VEGETATION ASSOCIATION** This is the group species occupying the tallest stratum. On certain soils the eucalypt species change from west to east, apparently reflecting increasing rainfall and declining temperature. This on soils formed from alluvium, *E. viminalis* and *E. melliodora* are dominant to the east of Eltham and *E. camaldulensis* further west. Similarly, on Silurian rocks, *E. polyanthemos* occurs to the east of Fitsimmons Lane.

**SOIL GROUP** Names have been given to soils according to the Soil Classification for Land System Map of Victoria. (Reference No. 8).

**FACTUAL KEY** Three different Primary Profile forms have been distinguished in the study area. They are described below.

| PROFILE FORM | GENERAL DESCRIPTION |
|---|---|
| Uniform | Soil profile dominated by mineral fraction with little, if any, texture difference throughout. |
| Gradational | Soil profile dominated by mineral fractions and showing increasingly finer (more clayey) texture grades passing down the solum. |
| Duplex | Soil profile dominated by the mineral fractions with a texture contrast of greater than 1.5 texture groups between the A and B horizons (Reference No. 6). |

**DEPTH** Average depth of horizon and depth of A horizon are given in metres.

**SURFACE TEXTURE** (Appendix II)

**PROFILE PERMEABILITY**

| | |
|---|---|
| ***Rapid*** | Generally sandy to medium textured soils or clayey soils with medium to fine strong structural development. |
| ***Slow*** | Soils usually with moderate to high clay content and moderate or weaker structural development. |
| ***Very Slow*** | Soils usually with high clay content and very coarse structure. (Reference No. 9). |

**SITE DRAINAGE**

This is an assessment of the rate of movement of water off the site as a result of runoff and profile drainage. It involves consideration of profile permeability and site slope and geomorphic setting.

* A **well drained** site is one from which water drains quickly by runoff or by soil infiltration. The water table may rise in the soil for short periods following prolonged rainfall but does not pond at the surface.

* A **moderately drained** site is one from which water is moderately to slowly removed. The soil profile is waterlogged for less than one week at a time and water is ponded at the surface for less than two days at the time following thorough wetting.

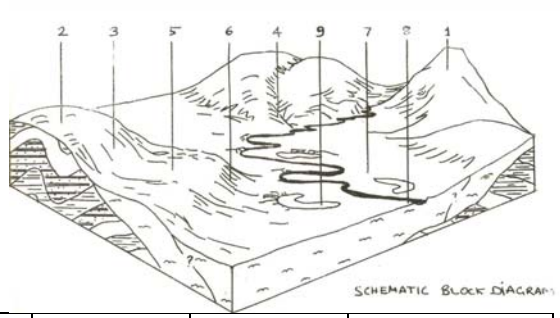
* A **poorly drained** site has free water ponded at the surface for up to one month at a time. Some water tolerant plant species are present.

* A **very poorly drained** site arises when free water is ponded for longer than one month at a time; water tolerant plant species form the dominant vegetation. (Reference No. 9).

**SOIL DISPERSABILITY**

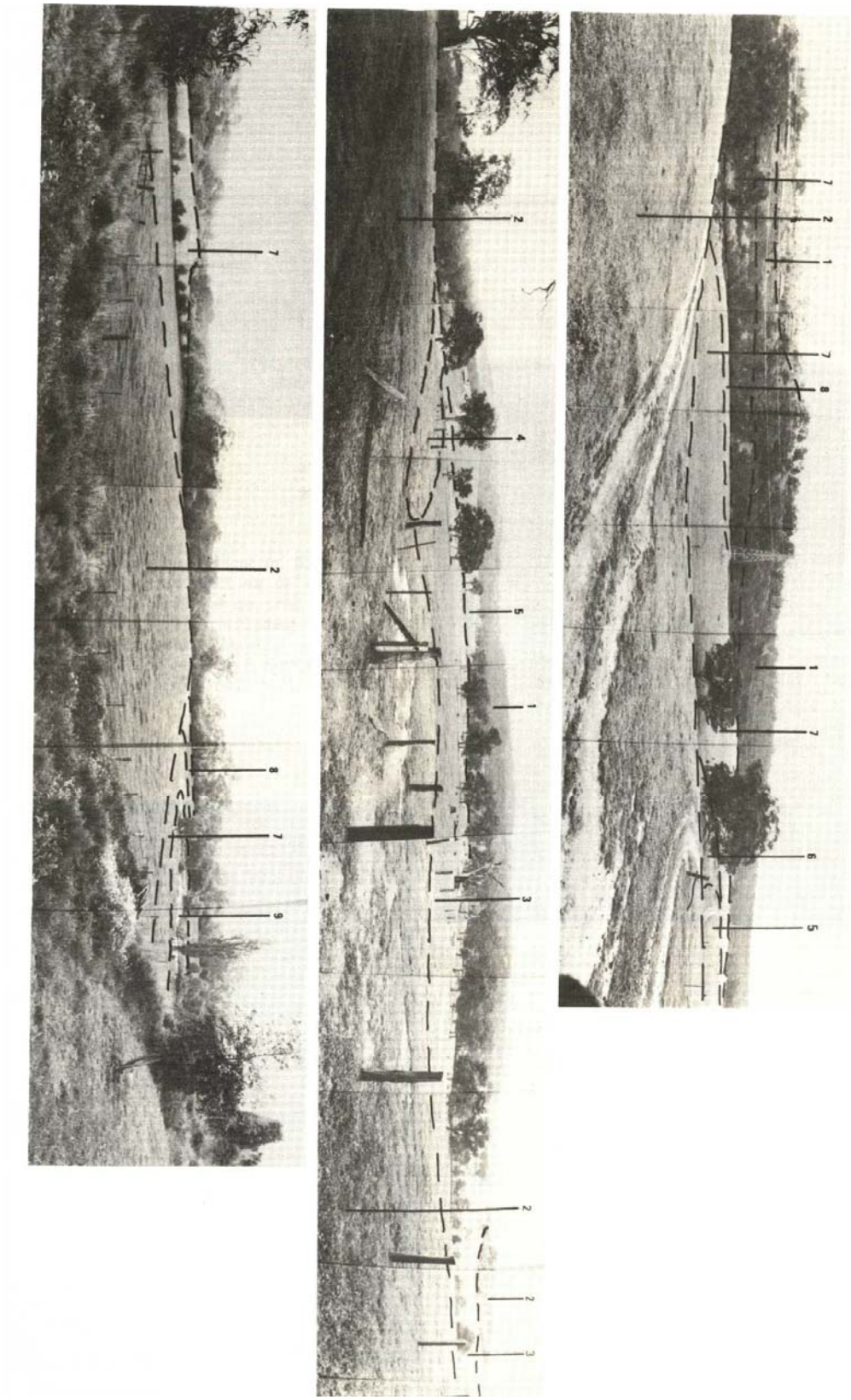
| | |
|---|---|
| ***Stable*** | No dispersion of air-dry soil aggregates occurs following shaking in distilled water. |
| ***Slight*** | Dispersion of air-dry aggregates occurs after 30 seconds working with spatula if not dispersed partially. |
| ***Moderate*** | Partial dispersion of air-dry aggregates following immersion in distilled water. |
| ***High*** | Total dispersion of air-dry aggregates following immersion in distilled water. (Reference No. 2). |

# A STUDY OF THE LAND IN THE PROPOSED METROPOLITANT YARRA PARK




| Land Component | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Proportion % | 22 | 8 | 15 | 1 | 8 | 9 | 25 | 2 | 3 | 7 | |
| Climate (Average) | Annual rainfall 660 – 812 mm<br>Annual average temperature 14ºC<br>Rainfall exceeds evapotranspiration from April to October | | | | | | | | | | |
| Geology | Silurian sandstones, mudstones and siltstones | | | | Quaternary alluvium | | | | | | |
| Topography Landform | Hills | | | | Terraces | | | | | | Disturbed Areas |
| Position | Steep slopes | Gentle crests | Moderate slopes | Drainage line | Upper surfaces | Upper terrace slopes | Low terraces | Levees | Billabongs | | |
| Average Sidelsope % | 30 | 5 | 15 | 2 | 3 | 8 | 2 | 2 | 1 | | |
| Slope Shape | Convex | Convex | Straight | Concave | Straight | Convex | Straight | Convex | Concave | | |
| Native Vegetation Structure | Predominantly open woodland | | | | | | | | | | |
| Native Vegetation Association | *E. polyanthemos*<br>*E. goniocalyx* | *E. melliodora*<br>*E. polyanthemos* | | *E. viminalis*<br>*E. rubida*<br>*E. ovata* | *E. melliodora*<br>*E. viminalis*<br>*E. camaldulensis* (west) | | *E. viminalis* (east) | | | | |
| Soil Group | Shallow stony brown gradational soils | Mottled yellow duplex soils, coarse structure | Mottled yellow duplex soils, coarse structure | Deep mottled yellow duplex soils, coarse structure | Deep mottled yellow duplex soils, coarse structure | Deep mottled yellow duplex soils, coarse structure | Deep mottled yellow duplex soils, coarse structure/or deep brown gradational soils weak structure | Weakly differentiated brown uniform soils, medium texture | Weakly differentiated brown uniform soils, medium texture | LAND FILL AND EXCAVATIONS | STRIPPED FOR TOPSOIL |
| Factual Key | Gn 3.81 | Dy 3.41 | Dy 3.41 | Dy 3.41 | Dy 3.41 | Dy 3.41 | Db and Gn 4 | Uc 1.43 | Um | | |
| Average Depth m | 0.70 | 0.90 | 1.50 | 1.50 | 1.50 | 1.50 | 2.00 | 2.00 | 2.00 | | |
| Depth of A horizon | 0.4 | 0.25 | 0.3 | 0.3 | 0.4 | 0.3 | 0.4 | 0.5 | 0.4 | | |
| Surface texture | Gravelly loam | Sandy loam | Sandy loam | Loam | Sandy loam | Sandy loam | Sandy loam<br>Clay loam | Sandy loam | Clay loam | | |
| Profile Permeability | Rapid<br>Moderate | Rapid<br>Moderate | Moderate<br>Slow | Moderate<br>Slow | Rapid<br>Slow | Rapid<br>Slow | Rapid to<br>Very Slow | Rapid | Moderate | | |
| Site Drainage | Well drained | Moderately drained | Moderately drained | Poorly drained | Moderately drained | Poorly drained | Well to very poorly drained | Well drained | Very poorly drained | | |
| Subsoil Dispersibility | Slight | Moderate | Moderate | Moderate | Slight | Moderate | Slight | Stable | Stable | | |

## PANORAMIC VIEWS OF AREA SHOWING RELATIONSHP BETWEEN COMPONENTS



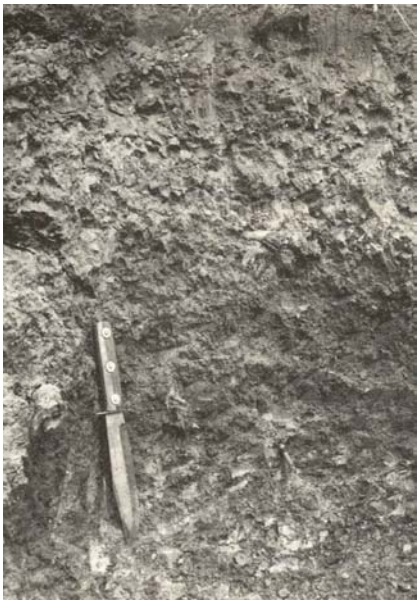


*Plate 1 – Typical soil profile from component 1. Profile is acid (pH 5), and stony throughout $A_1$, $A_2$, $B_1$, $B_2$ and C horizons present. Moderate structure is evident.*

*Plate 2 – Typical profile occurring on Silurian parent material as well as on some river deposits. The soil is neutral (pH 6.5) with light textured overlying apedal, $A_1$ and $A_2$, horizons abruptly to a heavy textured mottled yellow B horizon with strong blocky structure.*

*Plate 3 – A typical soil that occurs on recent river deposits. It has a deep brown sandy profile, weakly developed and generally acid (pH 5) throughout.*