3. METHODS OF DETERMINING LAND CAPABILITY

3.1 The Mapping Units

The land components in this study are identified by the factors of slopes, soil type, terrain, depth to rock and depth of A horizon. Areas which are similar with respect to these five factors are identified with the same component number. These are the basis of the capability assessment.

Table 1 shows the basis on which the land components were defined.

3.2 Capability Ratings and Land Use

Capability rating tables have been developed for the following land uses:

- Urban use
- Intensive cropping use
- Concrete slabs for light building foundations
- Stumps and strip footings for light building foundations
- Access roads and parking lots
- On-site effluent disposal
- Grazing
- Playing fields
- Intensive use area (e.g. picnic grounds)
- Walking paths and tracks

Five classes are used to rank capability; Class 1 denotes the land most capable of supporting a particular land use, and Class 5 in the least capable.

Some of the ratings tables used in this study are still under development and are subject to further refinement. Although every effort has been made to ensure that the ratings tables provide the best possible interpretations, they should be regarded as provisional development and are subject to further refinement. Although every effort has been made to ensure that the ratings tables provide the best possible interpretations, they should be regarded as provisional.

3.2.1 Rating system – Capability for Urban Use.

Urban land use is the use of land for residential or commercial use, where full servicing is provided to all allotments. Services in this context include sealed roads with full kerbing, channeling and drainage, full sewerage and stormwater drainage. Allotment size is normally of the range from 0.1 to 0.4 hectares (0.2 to 1.0 acres).

The limitations to urban development fall into three groups. These areas:

1. Long term instability, referring to flooding and landslips.
2. Engineering difficulties and
3. Erosion hazard.

The relationship between these limitations and the five urban capability classes is summarized in Table 2. Table 6 shoes the land features and their limitations, used to determine the urban capability classes.

Table 2 - URBAN CAPABILITY CLASSES

CAPABILITY CLASS	CAPABILITY	DEGREE OF LIMTATION	GENERAL DESCRIPTION
1	Very Good	None to Very Slight	Areas with high capability for urban development. The limitations of long term instability, engineering difficulties and erosion do no occur or are very slight. Standard designs and installation techniques, normal site preparations and management should be satisfactory to minimise the impact on the environment.
2	Good	Slight	Areas capable of urban development. Slight limitations are present in terms of engineering difficulties and/or erosion hazard. Careful planning and the use of standard specifications for site preparation, construction and follow up management should minimize developmental impact on the land.
3	Fair	Moderate	Areas with fair capability, for urban development. Moderate engineering difficulties and/or high erosion exist during construction. Specialised designs and techniques are required to minimize developmental impact on the environment.
4	Poor	Severe	Areas with poor capability for urban development. There are considerable engineering difficulties during development and/or a high erosion hazard exists during and after construction. Extensively modified design and installation techniques, exceptionally careful site preparation and management are necessary to minimize the impact on the environment.
5	Very Poor	Very Severe	Areas with poor capability for urban development. Limitations to development, either long term instability hazards, erosion or engineering difficulties cannot be practically overcome with current technology. Severe deterioration of the environment will probably occur if development is attempted in these areas.

3.2.2 Rating System – Capability for Intensive Cropping.

The limitations for intensive cropping fall into three groups. These are:

1. Factors which limit crop productivity and/or choice of crops,
2. Those limiting the use of agricultural machinery, and
3. Those factors affecting land deterioration.

The relationship between these limitations and the five intensive cropping capability classes is summarized in Table 3. Table 7 shows the land features and their limitations which are used to define the capability classes.

Table 3 - INTENSIVE CROPPING CAPABILITY CLASSES

CAPABILITY CLASS	CAPABILITY	DEGREE OF LIMTATION	GENERAL DESCRIPTION
1	Very Good	None to Very Slight	Areas of high capability for intensive cropping. These soils are suited to a wide range of crops and are highly productive. There are no limitations to the use of machinery and erosion hazard is low.
2	Good	Slight	Areas capable for intensive cropping. This land imposes some limitations on the choice of crops and/or slight restrictions to productivity, some limitations in the choice of cultivation machinery or simple soil conservation practices are required to prevent soil loss.
3	Fair	Moderate	Areas with fair capability for intensive cropping. This land imposes moderate restrictions on the choice of crop or crop productivity or has moderate impediment to the use of machinery or requires intensive cultivation practices to reduce soil erosion to an acceptable level.
4	Poor	Severe	Areas with poor capability for intensive cropping. This land is suited only to a few crops, or the yield for a range of crops may be low, the use of machinery is very limited, or a high erosion of crops may be low, the use of machinery is very limited, or a high erosion hazard exists in areas under intensive cultivation.
5	Very Poor	Very Severe	Areas with poor capability for intensive cropping. There are no economical crops suited to the soil, the use of machinery is very severely restricted, or the area is highly erodible.

3.2.3 Rating System – Capability for "Rurban" Use.

The term "rurban" is used to indicate the indeterminate area between urban and agricultural use. This includes rural residential, week-ender and hobby farming activities.

The most intensive "rurban" use can be defined as semi-urban land with block sizes of 0.4 to 2 hectares (1 to 5 acres). Semi urban land is without some or all urban services and is unlikely to have them in the future.

Large allotments, which are used for week-ender or hobby farming activities, normally do not have sewerage, drainage, or reticulated water.

The limitations for "rurban" development fall into four groups. These are long term instability hazards, engineering difficulties, erosion hazards, and agricultural restrictions. The relationship between these limitations and the five capability classes is summarized in Table 4.

"Rurban" use comprises a diverse range of minor land uses. To derive capability ratings for "rurban" land use, ratings for the minor land uses are in Appendix 5. The tables describe the limitations of the land features used to define the capability classes for the following land uses:

- Building constructed with concrete slab foundations
- Access roads and parking lots
- On site effluent disposal
- Grazing.

Table 4 - "RURBAN" CAPABILITY RATING CLASSES

CAPABILITY CLASS	CAPABILITY	DEGREE OF LIMTATION	GENERAL DESCRIPTION
1	Very Good	Very Slight	Areas of high capability for rurban subdivision (0.4 to 2 ha). The limitations of long term instability, engineering difficulties, erosion and agricultural factors do not occur or are very slight. Deterioration in these areas is minimal provided that normal safe management practices are followed.
2	Good	slight	Land which is capable of supporting rurban subdivision (0.4 to 2 ha), with some limitations, in the form of erosion hazard, engineering difficulties or agricultural factors. Careful design and layout for development should minimize impact on the environment.
3	Fair	Moderate	Areas of medium density subdivision (approximately 3 to 5 ha). Land characteristics affecting erosion, engineering works or agriculture are not compatible with development. Careful location of fences, buildings, access tracks and water storages and sound management practices will minimise the impact on thee environment.
4	Poor	Severe	Areas with poor capability for rurban use because of the limitations imposed by land features affecting erosion, engineering works or agriculture. Areas in the order of 10 ha are required to allow safe location of fences, buildings, access tracks and water storages. Blocks of this size combined with normal safe management practices should minimise the impact on the environment.
5	Very Poor	Very Severe	Areas with very poor capability for rurban purposes because of a high degree of hazard imposed by long term instability hazards, engineering difficulties, erosion hazards and agricultural factors. It would be difficult to use this land for rurban purposes without causing deterioration of the environment.

3.2.4 Rating system – Capability for Recreation.

The limitations for recreational land use development fall into four groups. These are long term instability hazards, engineering difficulties, erosion hazard and agricultural restrictions.

Recreational land use is comprised of a diverse range of minor land uses. To derive capability ratings for a particular recreational use, ratings tables for the minor land uses are used. Tables in Appendix 4 describe the limitations of the land features used to determine capability classes for the following land uses:

- Buildings constructed with concrete slab foundations
- Building constructed with stumps or strip footings
- Access roads and parking lots
- Playing fields
- Intensive use areas
- Paths and tracks